The Harveian Lecture

ON

FRACTURES OF THE PATELLA AND THEIR SURGICAL TREATMENT.

DELIVERED BEFORE THE HARVEIAN SOCIETY OF LONDON.

BY

C. B. LOCKWOOD, F.R.C.S.,

SURGEON, ST. BARTHOLOMEW'S HOSPITAL.

INTRODUCTION.

IT is fortunate that the knee-cap is seldom broken.[1] All fractures into joints are especially serious both at the time and afterwards. The joint is sure to become inflamed and cause pain and suffering, and it may in the end be stiff. But a broken knee-cap has a further evil. It is more likely than other fractures to end in bad union and a weak and unreliable limb. In the past this has always been a grave misfortune to the wage-earner, but in the future he will find himself in a sadder plight. Under the Workmen's Compensation Act of 1906 employers are liable to compensate any person under a contract of service—workmen or domestic servants—for personal injury caused by accident arising out of and in course of the employment.[2] It is obvious that a crippled leg must make its possessor more liable to undergo fresh accidents, to fall again, or get run over. But, in addition, after the knee-cap has once been broken it is more likely than other broken bones to break again. Out of the 38 patients upon whom I have operated, 4 broke the same knee-cap twice—2 broke fibrous union obtained without an operation, and 2 pulled the fragments apart after they had been fastened together by an operation. Both of these will be described hereafter. In each there was an avoidable fault in technique. But not only is a broken knee-cap likely to break again, but when one has been broken the other is not unlikely to follow suit. Four out of the 38 patients upon whom I have operated had broken first one patella and then the other. They were broken at intervals of one and a half, three, eleven, and thirteen years. I question whether my own experience of refracture or of double fractures of the patella is at all unusual.

So employers of labour have good reasons to look askance at those who have broken the knee-cap. The chances of refracture or of double fracture are very considerable; moreover, the strength and security of the limb has to be reckoned with. A weak or crippled limb increases the liability to all kinds of accidents.

Clearly it is of paramount importance that the treatment of fractured patella should give a perfect result. Also that it should give a perfect result in the quickest time. In the past I have treated fractures of the patella either with or without an operation. With the willing help of Mr. A. L. Candler, to whom my warmest thanks are due, a good deal of information has been collected about these cases. I propose to give the results and contrast the two methods of treatment. In addition Mr. Candler has collected some of the other cases treated in my wards, and these too will be used.

In contrasting methods of treatment it is necessary to know clearly what ought to be contrasted. Risks come first, and risk to life first of all. Then the risk to the limb, and last of all the risks to the utility of the limb.

Now, so far as I can learn, no one ever died of a simple fracture of the patella. A patient in my wards died with a fractured patella, but he had grave injuries to his thorax. A compound fracture is another thing altogether. Nor has anyone, so far as I know, ever lost a limb because of a simple fracture of the patella.

So that as far as treatment without operation is concerned, both of these dangers may be put aside, but there remains still that important question, namely, the ultimate value of the limb.

The operative treatment has, on the other hand, dangers which the non-operative does not possess. Although not always recorded, deaths after operation are not unknown, nor can risks to the limb be overlooked. Twice I have seen such severe suppuration after attempts to unite fragments which were far apart that amputation had to be considered. Should life and limb be saved then, needless to say, the suppuration ends in a stiff and crippled limb.

Although the risks of the operation to life and limb cannot be ignored, yet my own experience—which will be given hereafter—leads me to think that they must be very remote. But however remote they may be, yet they ought not to be incurred if the alternative safe method of treatment without an operation can be relied upon to give sufficiently good results.

THE TREATMENT WITHOUT OPERATION.

At St. Bartholomew's Hospital the treatment without an operation has usually been as follows: For three or four weeks the patient has been kept in bed with the limb extended upon a splint or inclined plane. Sometimes the blood and inflammatory effusion has been removed by aspiration. Some surgeons, including my old master, Mr. Willett, tried to pull down the upper fragment with strapping and elastic traction. About a month after the accident the extended limb is encased in plaster-of-Paris bandages or in a poroplastic splint. These are continued for about a year, during which the patient walks about with a stiff leg. In the end bony union did not take place. The most that could be hoped for was strong fibrous union. We now know that in nearly every instance of fractured patella some of the dorsal aponeurosis is torn off and pulled between the broken ends. This intrusion prevents bony union and retards or prevents fibrous, however close the fractured surfaces can be got together.

These remarks do not apply to those extremely rare instances of fracture without any separation.

CASES ILLUSTRATING THE RESULTS OF TREATMENT WITHOUT OPERATION.

The following are some instances—taken at random—of cases treated by long-continued extension of the limb, and are probably fair examples of its results. Some of them had broken both patellae and had had one treated by operation and the other without. These are especially useful for comparison. For example:

I.

In 1909 a carman broke his right patella, and had it operated upon at Guy's Hospital. The skiagram shows that this patella has united by bone, and that the wire has been broken and pieces of it scattered amidst the tissues over the outer tuberosity of the tibia. The next year he broke his left patella. The fracture was transversely through the middle of the bone with half an inch of separation. No operation was performed because he had a stricture of the urethra and his urine contained much pus. He was treated in the usual way. The limb was extended on a splint for about three weeks and then put up in plaster-of-Paris for six months. The skiagram, taken two years and two months afterwards, shows that this patella has not united by bone but with about a quarter of an inch of separation.

The patient himself is of opinion that there is nothing to choose between the two results, and that both are equally good. He has perfect movement in both knees, and is able to earn his living as a carman. He says that eight months elapsed before the right leg, which had been operated on, got well. The left, which was not operated upon, took about the same time.

Clearly good results can be got by both methods, but I should have expected the leg which was operated upon to have got well quicker. Clearly the patient took the risks of an operation without reaping one of its great advantages—a speedy recovery.

II.

At the age of 50 years a man broke his right patella, and had it treated in an infirmary by means of a plaster splint. Eleven years afterwards the fragments are 3 in. apart, and the femur can be felt between them, covered with thin tissues. The knee-joint can only be flexed 15 degrees, and is almost powerless for extension.

When 61 years old he broke the left patella. I treated this by operation. Nine months afterwards he said the leg felt strong. Its muscles were firm and well developed. The knee-joint flexed to a right angle, and extension was perfect. The patella was apparently united by bone with the wire in position. Unfortunately we could not get this man to have it photographed.

The superiority of the operation seems incontestable. Perhaps we ought to know more about the way in

which the splint treatment was carried out upon the defective side.

III.

At the age of 37 a man broke his left knee-cap. The treatment without operation resulted in at least 3 in. of separation; but in spite of this the limb seems to have been a useful one, because three years afterwards he broke the right patella, and after it had been treated, and after this double fracture, he said he could run and catch a tram. His right knee-cap was broken by slipping on a greasy road (February 4th, 1904). The fracture was transverse with the fragments close together. The leg was extended upon a back splint until February 17th, when there was so much swelling and cramp that the splint had to be taken away. On February 24th massage was begun. On March 26th a poroplastic splint was fitted and he began to walk with crutches. The splint was worn for eight months. This man's right patella was not wired because he was a glass fascia writer, and it was considered he would get a sufficiently good result without the risks of operation. Clearly this was so, for in spite of 3 in. of separation on the left side, he was able, as I have said, to run after a tramcar. But on October 6th, 1909, he again slipped crossing a road, and tore through the fibrous tissue by which his right patella had united. On this occasion an operation was performed; the lower fragment was so small that it had to be united to the upper by a horizontal circular loop as well as by the usual vertical wire. He now has a useful but far from perfect limb. The skiagram shows that the wiring has torn out of the upper fragment. Possibly torn a piece of it off, because there is an inch of separation with a shadow between, which may indicate the presence of bone. There is no wasting on this side, and the limb can be flexed to a right angle. His progression is very good, but he cannot run.

Here we have a case in which massage was employed at an early date, and in which, although the results seemed to be good, the patella broke again, and then after wiring pulled apart again, indicating, one would suppose, some fault in the patella itself. It is noteworthy that the patient says he could run after breaking both patellae, and with 3 in. of separation on one side.

IV.

A man broke his right patella in May, 1907. The fracture was transverse with an inch of separation. He was kept for a month in bed with limb extended on a splint. Afterwards a leather splint was worn for two years. Three and a half years after the injury there was much wasting of the muscles of the right thigh and leg. The knee-joint can be fully extended, but only flexed 20 degrees. The man walks with a limp, and says the leg occasionally gives way under him. The fragments of the patella, as the skiagram shows, are barely half an inch apart. They are united by strong fibrous tissue. In spite of this excellent repair of the patella the result is most unsatisfactory, because, although the long-continued splinting had united the patella so well, yet it had wasted the muscles. The man was a printer's cutter, and could earn his living although his leg was weak and insecure. Many other occupations would have been closed against him.

V.

In 1897 a woman broke her right patella; it was treated by Sir Thomas Smith, who kept her in bed for a month with strapping on the knee. Afterwards it was in plaster for six months, and when that was taken off a back splint was worn for many months. She says she could not kneel upon it for two years. Thirteen years afterwards the right patella was firmly united by fibrous tissue with the fragments half an inch apart. The muscles of the thigh are strong and well developed; she says she can go quickly upstairs, but cannot run.

In November, 1910, the left patella was broken transversely at the junction of the upper and middle thirds. There was about one inch of separation. This fracture was united by operation. The skiagram shows that bony union is almost completed. The calcification is not yet dense throughout. Clearly the right knee took a long time, although in the end the result was very good. It is rather too soon to say what the left is going to be like, but it promises to give an equally good result in a sixth of the time.

VI.

A porter at a mineral-water works broke his right patella in 1904, and it was treated without an operation. He was in the hospital for three weeks, and wore a splint for eight months. After taking off the splint he began to bend the leg himself, and four months elapsed before he got movement in his knee-joint. In the end the fragments of the patella, which feel of equal size, are slightly movable upon one another; the gap between them is about a quarter of an inch. There is no muscular wasting, and a complete range of movement in the knee joint. He considers that the broken knee is as strong as the other. It never gives way, although he has to carry weights of nearly 2 cwt.

We have here examples of the results of treatment without an operation. (1) Good fibrous union with a good and useful limb. (2) Good fibrous union, with wasting of muscles and defective limb. (3) Wide separation and a useful limb. (4) Wide separation and a wasted defective limb.

None of these cases illustrates (5) the formation of intra-articular adhesions during the expectant treatment. But I have seen such an one operated upon.

VII.

A burly policeman broke his patella in the month of March, and again seven months afterwards, in October. In December the knee was quite stiff, and the fragments of the patella 2 in. apart.

An operation failed to bring them together in spite of much cutting of extensors and retinacula. When the joint was opened, very firm and extensive fibrous adhesions were seen inside it. This is one of the cases which had such severe suppuration after the operation. One would suppose that after the first break the limb became of use again, and that the adhesions formed as the result of inflammation following the second. It is not likely that the man would have broken his knee-cap a second time had the joint ankylosed after the first breakage.

These instances of the results of the treatment of fracture of the patella without an operation are unsatisfactory in two respects. In a large proportion the limb was weakened or permanently lame, and in all the treatment took a long time—perhaps a year on the average.

Some would say that these cases give a far too gloomy impression of the results of the treatment without operation. Unfortunately we have found it difficult to interview many of those who have been treated without an operation. An increasing number of fractured patellae are now operated upon. Last year (1910) 37 cases of fractured patella were admitted into St. Bartholomew's Hospital, and 25 were treated by operation, so that few remain for purposes of comparison. But my own general impression is that the cases I have given are about average samples of the results of treatment without an operation, and by long-continued fixation of the knee. I regret never to have seen any of the results of the treatment of Kraske and Zum Busch,[3] who "give up the idea of bony union from the onset, allow the patients to go about on the second day, walk upstairs after the eighth day, and report good results." Heroic surgery practised upon heroes.

The question of time is all-important. Wage earners cannot afford the long course of treatment usually thought necessary. The following gives a vivid idea of what time means to the poor. A man writes: "I feel very grateful for the operation which enabled me to start work again after fifteen weeks and this (*sic*) saved my wife and family from that place we all dread to go—the House." When I place the disadvantages of operative and non-operative treatment before my hospital patients, the saving of time always makes them choose the operative—in spite of a clear statement of the risks.

VIII.

A messenger, aged 52, broke the left patella. It was operated upon in the German Hospital. After a month in that hospital and a further fortnight's rest he says that he was able to work again. Eighteen months afterwards he had bony union with two wires in position—a complete range of movement and a perfect limb. Then he slipped in the street but did not fall. He said he heard something crack in the right knee, but went on wheeling a barrow, and when his work was done walked to the hospital. The right patella was broken across and he elected to have it operated upon. The expectant treatment was declined by this man on the score of time, and also because he thought that he could not mount stairs whilst the knee was being kept stiff.

TREATMENT BY OPERATION.

I now come to the alternative treatment by operation. I have always done the open operation which since 1878 we owe to the genius of Lord Lister; although according to Reichel[4] "three hundred years previously Severino, and later Dieffenbach and Rhea Barton, had performed the same operation."

About some of the details of this operation there is still some divergence of opinion, and therefore I propose to say what I have done myself and try to point out the methods which have given the best results. In the first place there can be no question as to the propriety of always performing an open operation. We now know that some of the dorsal aponeurosis is nearly always torn off and intruded between the broken ends. This effectually prevents bony union, although good fibrous union can take place in spite of its presence there. It is, I believe, impossible to ensure an accurate coaptation of the fragments except by an open operation.

Clinically it is not possible to form a precise opinion of the kind of fracture or of the position of the fragments. To the touch they may feel as if the broken surfaces were

facing one another, whilst as a matter of fact the lower one may be so much tilted that its cartilage faces the broken surface of the upper one. *X*-ray photographs, too, give valuable information, but they cannot be relied upon to reveal the additional breaks which are so often met with in the lower fragment. An open operation also enables one to remove all the clotted blood from the inside of the joint. This could not be done through a puncture or small wound. And, in addition, rents in the capsule can be repaired.

Most of my operations have been done about the fourth or fifth day, but nothing is gained by delay, and now they are done as soon as the operation is properly organized.

Thirty-nine operations were done upon 38 patients—30 males and 8 females. The youngest was a woman aged 22, the oldest a man over 63 years of age. The right patella was wired 16 times and the left 21. Twice the side is not stated in the notes.

Various skin incisions are in use. The patient who had been operated upon so successfully at the German Hospital had a transverse scar, showing that the operator made use of Lord Lister's original incision. But many surgeons now prefer to cover the line of union of the fracture with a flap rather than leave it directly beneath the wound. Another patient who had been operated upon in Guy's Hospital, and who also had an excellent result, had a vertical scar situated over the long axis of the patella.

I have always of late adopted a semilunar incision, carried at the distance of an inch round the inner side of both fragments; beginning on a level with the highest point of the upper one, and ending at the outer side of the ligamentum patellae. When this flap has been turned up it gives, of course, full access to the fracture, to the interior of the joint, and to the rents in the capsule. As soon as the joint is explored all the blood clot is removed from within it, and not infrequently some of the badly bruised tissues are also cut away with scissors. The blood is nearly always situated between the fractures and in the front part of the knee joint, a circumstance which makes it much easier to extract it with some sort of a scoop or spoon. At times the blood is under considerable pressure, and spurts out when the joint is opened. One would have thought that under such circumstances the patient would suffer additional pain, but a man upon whom I operated a few days ago seemed to suffer little inconvenience although the blood spurted out of his joint in quite a considerable jet. This was the man who pushed a barrow for half an hour after he had broken his knee-cap, and who walked to the hospital when his work was ended.

When any difficulty is experienced in dislodging the blood, abundant lotion is poured into the joint, usually a solution of mercuric biniodide 1 in 4 000, sometimes saline solution; but I question whether the latter is quite to be relied upon in the dust laden air of the City of London.

And next all the dorsal aponeurosis is cut away from between the ends of the bone. This structure is nearly always inturned, and covers part of the broken surfaces of both upper and lower fragments. As a rule the upper is the largest flap. When the operation has been delayed the broken surfaces are often covered with firm reparative material. This is removed with a knife, scissors, or a Volckmann's spoon. This removal is very thorough, and occasionally I have sawn off a thin layer of bone. At this stage of the operation the torn capsule is trimmed up with scissors.

At an early stage of the operation a drainage tube, about one-third of an inch in diameter, is placed at the outer side of the joint. A pair of curved pressure forceps is pushed down the inside of the joint over the external condyle, and made to project in front of the external lateral ligament; here it is cut down upon until it can be pushed through, so that when it is withdrawn it carries with it the drainage tube. It is advantageous to introduce a drainage tube at this early stage of the operation, for it serves to carry off any of the blood which escapes whilst the fragments are being trimmed, or the lotion used to wash out the blood.

In some of my earlier cases the drainage tube was lodged through some part of the original skin incision, but that did not seem to afford such satisfactory drainage. The question of drainage will be referred to again.

I have already remarked upon the difficulty of diagnosing the kind of fracture except by looking at it through an open wound. The following were met with in 38 cases:—In 29 the fracture was transverse, the fragments being about equal in size, but in 6 of them the lower fragments were smallest, sometimes too small to hold a wire, and in 2 the upper fragment was smallest, but I have never seen the upper fragment as small as I have sometimes seen the lower.

In 2 the fracture was T-shaped, the main fracture crossing the middle of the patella transversely with a vertical fracture through the centre of the lower fragment. In 3 the fracture was transversely through about the centre of the patella, with a small triangular piece broken off the outer angle of the lower fragment. Once the fracture was transverse, with a small triangular piece broken off the inner angle of the lower fragment. Two were Y-shaped, the fractured end of the upper fragment forming an angle which fitted by its apex into a vertical fracture through the centre of the lower fragment. Once the fracture was comminuted, with a transverse fracture through the middle of the patella with the lower fragment broken into three by two vertical fractures, so that there was a large central fragment and a small outer and inner one.

One of the Y-shaped fractures was diagnosed clinically as being a star-shaped fracture. There is a tradition that these fractures unite by bone and therefore do not require an operation.* A woman with what was diagnosed to be a star fracture was treated in the usual way and went to Swanley with a plaster splint on. On her return she broke her knee-cap as she was ascending the surgery steps. On this occasion an operation was performed, and, as I have said, a Y-shaped fracture was found.

I am afraid that I cannot agree with my friend Mr. Burghard that *x*-ray photographs "readily differentiate" the kind of fracture. For the fissures in the lower fragment are hidden by the shadow of the femur.

We have found it hard to learn from the patients how they broke their knee-caps. As a rule those with a transverse break did not hit the knee against the ground, although they may have fallen down. An intelligent man said he was wheeling his barrow in the street when he felt a crack in the knee. He never fell nor touched the ground with his knee, but went on wheeling his barrow, and afterwards walked to the hospital. So his right patella was broken across by muscular action. This case also shows that muscular action may do more than break the bone clean across, because he had a small piece, which was not to be seen in the *x* ray photograph, broken off the outer angle of the lower fragment, leading one to think that the T- and Y-shaped fractures may also be caused by muscular action, and also those in which the fracture is transverse with a piece broken off the outer or inner angle of the lower one.

Another fairly well educated and intelligent man with the patella broken into four fragments was positive that he fell so that the bone came in violent contact with the ground.

Mr. Blakeway has most kindly obtained for me knee-joints divided vertically. These have been photographed at various degrees of flexion. They confirm what we already know about the movements of the patella. When the knee is bent to half a right angle, a very small area at middle of the patella is in contact with the convex condyle and the bone is most advantageously placed for being broken across the condyle, like—as the books say—a stick across the knee. When the knee-joint is bent at a right angle only the upper third of the patella is supported on the condyles, the lower two-thirds being unsupported, and, as can also be felt, projecting in front. Thus the lower end is most favourably placed for being broken off or comminuted by direct violence—or for being pulled off by the leverage of the tibia acting through the ligamentum patellae. The lower end of the patella is thin and pointed, and, we may assume, unable to offer as much resistance as the rest. We have here some reasons to explain why the lower fragment is usually the smallest. I have not yet met with a vertical fracture in the upper fragment; it has invariably been single. As Mr. Blakeway

* In a recent work on surgery it is said: "The stellate or longitudinal fractures, which are readily differentiated by the *x* rays and which are not accompanied by any marked separation of the fragments, are excluded from this category; in them excellent bony union usually results without operation."—*A System o Operative Surgery*, by F. F. Burghard vol. i p. 611.

suggests, the upper fragment is not likely to be broken again by the quadriceps extensor because it is easily pulled up and can offer no further resistance.

But vertical fractures are quite common in the lower fragment, and are usually central. The outer angle of the lower fragment was broken off in three instances, and the inner in one; I should expect the thin outer angle to be more easily broken off than the thick inner angle, which is supported during flexion upon its crescentic facet.

I suspect, moreover, that during violent muscular action the thin outer edge of the patella may be pulled against the external condyle. I have seen a case of genu valgum in which both patellae were pulled outwards over the external condyle of the femur by the contractions of the extensors of the thigh.

The Operation.

I have always used annealed silver wire to bring fractures of the patella together, and consider it by far the best and most reliable material. One of my patients had previously had his patella united with fishing gut, but it came apart again six months afterwards. When I operated the second time, bony union had not taken place. The fishing gut had come undone at the knot. Every salmon fisherman knows what treacherous material gut is to knot. On these grounds alone it is to be condemned.

Kangaroo tendon was used once last year at St. Bartholomew's Hospital.[5] Once my colleague, Mr. Rawling, tried chromic gut, but found it difficult to pull upon it enough to bring the fragments firmly together. My colleague, Mr. Bruce Clarke, uses catgut to unite the dorsal aponeurosis and rents in the capsule and puts no other retaining sutures in. He is very contented with the results. It is, he considers, harmful to drill the patella.

Although silver has been used for subcutaneous sutures for many years, we do not know much about its behaviour in the tissues. In the year 1900 I used silver wire ten times for the radical cure of hernia, after the method of Bloodgood. At the beginning of this year I had to remove some of the wire which had been buried in the tissues for about ten years. It had turned black, and all the tissues about it were deeply pigmented.

The photograph of the knee of a patient who had had his right patella united by wire at Guy's Hospital in 1899, shows the front half of the wire, including the twisted part, in position. But the hinder part of the loop has been shattered into three pieces. Two of these, each about one-third of an inch long, are close to the outer side of the tubercle of the tibia, whilst one bent piece three-quarters of an inch long lies over the outer tuberosity of the tibia. This state of things was not suspected until the photograph was taken. Another man, whose patella was wired on January 13th, 1906, and who was photographed in January, 1911, had bony union and a perfect result, but the skiagram shows that the wire has come undone at the twisted part, and that its loose end gradually tapers off, as if it had undergone corrosion.

For simple transverse fracture of the patella I have used a single stout wire. This is applied with the intention of keeping the fragments in accurate contact until they have undergone bony union. Nothing short of bony union is able to withstand the enormous strain of the great extensor muscles. I have never seen it stated, but infer that some surgeons do not attach the same importance to bony union, but expect sutures alone to withstand the action of the extensor muscles. I know an instance in which the patient was allowed to work within six weeks of the operation. The surgeon could not have expected bony union in that time and must have relied upon the wire. The photographs lead me to think that about three months is required for good bony union. Two photographs of uncomplicated transverse fractures show that ossification was not quite complete towards the end of the third month, although the position of the fragments was good. One of my cases illustrates the dangers of using a double strand of wire.

IX.

On February 25th, 1910, I wired the transverse fracture of the left knee-cap for a man aged 27. The wire supplied for the operation was so thin that it had to be used double, both strands being threaded through the same drill holes in the patella and then twisted together in front of it. On August 29th, 1910, the man, whilst carrying a weight, broke the bone again. At the second operation I found that the wires had come undone at the knot. There had been no attempt at bony union. I suspect that the wire came apart long before the accident, allowing the fragments to separate with failure of bony union. On the second occasion the wires themselves were not taken out; they seemed in perfect position, and by merely twisting them together separately the surfaces came into accurate apposition. In January, 1911, the photograph shows both knots intact and that bony union has taken place. He was seen at the end of February, 1911. He is a fish porter, and says he can carry 2 cwt. of fish—that his left leg feels as strong as the other, and that he can run upstairs. He has complete flexion and extension, but slight wasting of the muscles of the left leg.

This man's case illustrates another point. I usually drill the fragments obliquely, so that the drill hole emerges through the broken surface exactly in front of the articular cartilage. When the wire is tightened up none of it is exposed within the joint. But in this case, as in some of the others, the cartilage was drilled, and the skiagram shows at least half an inch of the loop within the joint. So far no harm has resulted, and I question whether it matters at all. Indeed, I have not hesitated whenever the lower fragment has been particularly small to encircle it, cartilage and all, by piercing the ligamentum patellae.

The fractures were found to be so variable that they had to be wired in a number of different ways, such as:

A. A single verticle loop at the middle of transverse fractures.

B. Two slanting sutures for Y-shaped fractures. The upper fragments drilled once.

C. Four slanting sutures. The fractures being obliquely across the patella with the lower fragments broken into two unequal parts.

D. A single horizontal loop to enclose a piece broken off the inner or outer angles of the lower fragment. Transverse drill-holes. The same used for T fracture with small lower fragments. Mattress sutures not practicable.

E. A horizontal circular suture the same as D, through the upper and both lower fragments of a Y-shaped fracture, combined with two slanting sutures the same as B, but intertwined with the horizontal loop.

F. A horizontal circular suture through the upper fragments and surrounding a very small lower fragment by passing through the ligamentum patellae. Reinforced by a vertical loop through the upper and lower fragments above and below the circular loop. Sixteen months afterwards the fragments were nearly an inch apart, the wires having torn out of the upper fragment. The man had a useful limb because of the presence of fibrous union, and the skiagram shows some bone in it. This man had broken the left patella once and the right twice, the right being the one operated upon.

G. An attempt was made to fix another small lower fragment by using the wire horizontally through the ligamentum patellae, but it tore out sideways. A horizontal loop was carried through the centre of the lower fragment and through the ligamentum patellae near its tibial attachment. This served to reinforce the ligamentum patellae and support a vertical medium suture which held the upper and lower fragments together; and two thin lateral sutures which closed large rents in the capsule and helped to hold the fragments together. The ultimate result was good; four months afterwards the patient had good union, and could kick hard with the leg. Ten years afterwards he writes to say that he is cured and working in a warehouse.

Whilst inserting the wire I have taken care to keep the twisted ends as high as possible so as to be out of the way in kneeling. But when kneeling is painful, as it was in two instances, the pain is not always due to the wire.

X.

I am indebted to Mr. Cyril Thatcher for a very clear photograph of a wired patella. At the operation the lower fragment was very small and consequently the twisted end of the wire was rather low down. Six years afterwards the result is all that could be desired, except that kneeling is painful. Mr. Thatcher's photograph shows the wire in position, and the patella united by bone. But just below the patella there is a small bony nodule in the ligamentum patellae. There is no reason for thinking that this was part of the lower fragment—which, although small, was single—it seems to be a new formation.

XI.

A butcher whose left patella was wired in 1908 said in 1911 that the leg was as strong as the other and that he "could do anything but kneel, because something seemed to pierce the

skin." Here again the lower fragment was very small. The twist in the wire is high up, but the lower end of the loop projects in front at the attachment of the ligamentum patellae.

The wire had to be taken out of 2 of the 39 cases.

XII.

A woman aged 28 had a transverse fracture of the left patella wired on February 10th, 1906, five days after the accident. Large rents in the capsule were closed with silkworm gut. A week later a subacute abscess formed beneath the flap; drains were placed beneath the flap, and one at the outer side of the joint. At this time an offensive vaginal discharge was discovered. The infection was mild and ran a favourable course. Two months after the operation the patella was movable, and nine months later I saw the patient, and she also had a good and movable knee. The wire was removed from a sinus three months after it had been put in; also one of the pieces of fishing gut ultimately came out.

This was before the days of *x* rays, so that I do not know for certain whether bony union took place, but I think it did. It is the only case out of thirty-nine in which there was suppuration. The operation would not have been done had I known about the infection.

XIII.

The second case was also that of a woman, who was admitted intoxicated with a compound fracture of the right patella. The fracture was supposed to be of the star kind, and should therefore according to tradition, have united by bone. After a projecting piece of bone had been removed there was slight suppuration caused by *Staphylococcus albus* infection. The wound healed and the woman went to our convalescent home wearing a plaster splint. On her return she slipped on the hospital steps and broke her right patella again. When this was operated upon the main fracture ran across the middle of the patella obliquely from above downwards and outwards. The middle of the lower fragment was broken in two vertically. The upper fragment had adhered to the femur but the fibrous tissue was easily broken through. The fractured surfaces were covered with fibrous tissue and had to be refreshed with a saw. Four slanting sutures were inserted. The wound healed by first intention, but later a haematoma was found under the flap and with the wire in view through a minute ulcer in the skin. Gas was given and one of the four wires was removed. Healing quickly followed, but three months after the operation the movements of the knee were limited—although she was walking about quite well. We have been unable to see this woman again.

I do not propose to dwell upon the remaining stages of the operation. The wound is closed and the limb adjusted upon a comfortable splint such as Neville's or Mackintyre's. The drainage tube inserted at an early stage at the outside of the joint is left in position and taken out in forty-eight hours or more. The dressings are put on with a many-tailed bandage, so that it is easy to get at the tube without any movement whatever.

The drain always allows much blood and synovial fluid to escape. I have tried to do without the drain, but the patients usually suffered from far more pain than those who were drained. When the tube was removed, on the third day, from the knee of a man who is said to have had no pain, a gush of synovial fluid ensued. The drain was kept in another knee for several days because some synovial fluid continued to run from it. In another instance bright arterial haemorrhage followed the removal of the tube on the second day. This was at once stopped with a strip of gauze. One man had much reactionary haemorrhage from the tube the night of the operation, and the sheets were soaked with blood. It ceased spontaneously, but the tube was left in for five days. His recovery afterwards was uneventful. Another man had a small haematoma under the flap, but it caused no delay in the repair.

The only complication occurred in an aged working man, who before the operation looked ill and anaemic.

XIV.

He gave his age as 63. The operation was undertaken with reluctance, although he was very anxious to have it done. A week afterwards his leg swelled, and it was clear that he had thrombosis of the popliteal and superficial femoral veins. Three and a half years afterwards he had a very good and useful limb, but said the knee ached a good deal at night. He has chronic rheumatic arthritis in both knees. The skiagram shows good bony union.

I declined to operate upon a man with stricture of the urethra and septic urine and upon another with albuminuria.

To learn the ultimate result we have been able to obtain skiagrams of 12 out of the 37 patients. In 11 there is good bony union with a thoroughly good limb. The case in which bony union failed has already been mentioned. It is that of the man whose left patella had been broken, and as a result of treatment by splint the fragments were 3 in. apart, with wasting of the thigh. He afterwards broke the right patella, which was also treated with splints, but the bone broke again and was then wired. The lower fragment was so small that it could only be surrounded by horizontal and vertical wires. The skiagram shows that these have come out of the upper fragment leaving a gap of nearly one inch, but with what appears to be a bony nodule in it. The man is well able to do his work, but says that he cannot run or go quickly upstairs. Although he has not got bony union, the leg which was operated upon is certainly the best.

Another patient whose patella was wired for me by Mr. Jameson also has good bony union, and the limb is as good as the other.

A small proportion of the patients had some slight diminution in the degree of flexion, but as this never prevented kneeling it was scarcely noticed.

In spite of excessive wasting of the left leg, owing to bygone infantile paralysis, a man aged 43 recovered with a leg as good as it was before. Two and a half years after the operation he has good bony union, but cannot flex the knee quite so far as he could before the operation.

Considerable differences of opinion prevail as to the best treatment after the wound is healed. Some begin to bend the joint during the third week—massage it—and by the sixth week allow it to be freely used. But, as I have said, bony union cannot be relied on so soon; and therefore, although making use of gentle movements and of massage, I apply a restraining apparatus until the end of the third month, lest the repair be torn through by a sudden bending of the joint. A plaster-of-Paris or poroplastic splint is usually employed, but those who can afford it have a jointed steel apparatus—made with a ratchet—to allow of gradually increasing flexion.

I only find one note to say that nitrous oxide had to be given six weeks after the wiring to break down "many firm adhesions." The formation of adhesions seems to be exceedingly rare.

It has been found desirable to begin massage and movements early when there has been much bruising of the tissues. This is commonest when the fracture is comminuted.

In conclusion, I venture to say that the facts which I have laid before you are most strongly in favour of treating all fractures of the patella by an open operation. That gives a far better result in a far shorter time. The advantages gained far outweigh the risks.

REFERENCES.

[1] 1.4 per cent. of all bone fractures according to Reichel, quoting v. Bruns and Rossi, *A System of Practical Surgery*, E. von Bergmann, vol. iii, p. 573; translated by Bull and Tolley. [2] See that useful little book, *Workmen's Compensation Act, 1906*, seventh edition, by T. Henry Baylis, 1907, p. 73. [3] Loc. cit., p. 578. [4] Loc. cit., p. 578. [5] Surgical Registrar's Report.

THE Belgian Medical Federation, which has recently been recognized by the Belgian Government, includes twenty-five societies, with a total membership of more than 2,500 members. The federation is organizing a professional congress to be held at Charleroi in September next (16th, 17th, and 18th).

H. SCHMIDT, in an article contributed to the *Zeitschrift für Augenheilkunde* (January, 1911), entitled "Cataract Section in One Movement," bears rather grudging witness to the excellence of the cataract knives made by Messrs. Weiss, of London. We cannot do better than translate the author's exact words: "Unfortunately, the extraordinary superiority of the English manufacture, both in material and in workmanship, is seen at a glance. The cutting edge in places approaches a mathematically straight line, whereas the German article shows an unevenness. That part which lies near the edge, and which I will call the stropping zone, forms on the English blade an even band with parallel borders and relatively shallow furrows, whereas the lower edge on the German knife forms an entirely irregular line with deep furrows." Schmidt took one of Weiss's Graefe knives, and two of the very best German knives, and had them photographed under a high magnification; in the above sentences he expresses his opinion of the two photographs. Schmidt found that a Graefe knife could be placed in cold water containing 1 per cent. of sodium bicarbonate and boiled for fifteen minutes without the slightest alteration of its edge when examined microscopically, but if the cold knife be plunged into boiling water and then examined its edge shows minute serrations. He recommends that every knife be annealed by boiling up from cold before being sterilized for use.

Remarks
ON
BURSAL SWELLINGS ABOUT THE KNEE-JOINT.

BY
ARTHUR E. BARKER, F.R.C.S.,
SURGEON TO UNIVERSITY COLLEGE HOSPITAL AND CONSULTING SURGEON TO THE QUEEN ALEXANDRA MILITARY HOSPITAL, MILLBANK, S.W.

Of late years a good deal has been learnt with regard to bursal swellings about the knee which seems not yet to have become current, and which has not, I think, up to the present sufficiently influenced their treatment and our views as to their relations to troubles in the knee-joint.

The swellings which most commonly present themselves in this part of the body are: (1) Those of the prepatellar bursa; (2) those of the bursa upon the expansion of the semimembranosus tendon, between it and the inner head of the gastrocnemius; (3) under the expanded insertion of the sartorius muscle, between it and the tendons of the gracilis and semitendinosus; (4) under the gracilis tendon between it and the internal lateral ligament; (5) under the patellar ligament, between it and the front of the tibia; (6) between the bifid insertion of the biceps cruris and the external lateral ligament of the knee-joint.

Enlargements of the last two bursae are in my experience uncommon, and may, therefore, be puzzling when met with. It must be remembered also that the semimembranosus bursa and that under the ligamentum patellae often, if not invariably, communicate with the knee joint, and may be enlarged in common with it by synovial distension. Those bursae about the inner and outer hamstring tendons rarely, if ever, primarily communicate with the knee cavity, and if enlarged the change is, therefore, due to abnormal conditions in themselves.

It has been held by some (Baker, Koenig, and others) that certain large bursal tumours round the knee are derived from hernial protrusions of the synovial membrane through weak spots in the capsule (so-called Baker's cysts). But we must remember that the views on these structures were put forward at a time when it was considered very imprudent to investigate them by operation, owing to the dangers of sepsis spreading to the knee-joint, and consequently a minute examination of their relations could rarely be made during life, and they were seldom dissected after death Since then we have learnt how to operate on them without risk, and my own experience of a considerable series of cases leads me to the conclusion that the swellings here alluded to are always enlargements of pre-existing bursae and not hernial protrusions due to overstrain. I have never seen anything to support the hernial hypothesis in the case of the knee.

The first point we have to bear in mind in regard to all synovial bursae is that they may be regarded as rudimentary joints. Their structure is the same except for the absence in some of bony constituents. They have the same fibrous capsule and the same lining of secreting cells as joints proper. As might be expected, then, they show the same morbid changes as the ordinary articulations, and from the same causes.

Simple synovitis of the knee, bursitis of the prepatellar sac, and teno synovitis, or of a bursa underlying a tendon, are essentially the same disease. In all there is distension by hypersecretion, due to subacute inflammation, the result, it may be, of overuse or strain; again, all may also be the seat of septic infection through the blood or from without, and the effect is the same pathologically in all. But it has taken us a little longer to realize that just as we find gouty, tuberculous, gonorrhoeal, and so-called pyaemic affections of joints, so we may meet with the same in separate bursal structures or tendon sheaths, while the joints remain unaffected. This will sometimes explain the presence in certain obscure toxic blood conditions of painful spots or swellings in situations out of the line of the more commonly named bursae and sheaths, but in which we know that smaller or larger bursae do exist which otherwise rarely attract attention. I believe I have seen cases in which some of the deeper bursae among the dorsal spinal muscles have been thus affected, and those in the deeper parts of the foot.

Again, it is most important to remember that just as disease—for example, tuberculous—may spread from a joint to extra-articular bursae and tendon sheaths, so *conversely* extension may take place from the latter to a joint if neglected. This general observation is, perhaps, better illustrated in the case of the wrist than by that of the knee. Here it is not infrequently seen that an apparently simple ganglion (say, on the dorsum) reveals itself on excision to be tuberculous, and, unless thoroughly extirpated, often shows its nature by involving the articulations of the carpus in typical tuberculous caries. And I have known a patient, previously healthy, die of general tuberculosis within a couple of years of the first appearance of a single tuberculous teno-synovitis in one finger. Numerous instances of primary infection of bursae and tendon sheaths with tubercle in various parts of the body might be cited. The same might be said of gonorrhoea and many other less definite blood infections attacking deep-seated and, so to speak, "out of the way" synovial tracts. Why only a certain joint, bursa, or sheath should be singled out for this infection to the exclusion of others is only one of the many difficulties which beset the whole study of the clinical history of tubercle. Blows or strains causing effusion of blood or lowering the vitality of the part may be found to account for some of the determining causes, but we can obtain no evidence of either in other cases.

Turning now to a more particular study of each of the half-dozen bursal swellings round the knee in our list, a few words only need to be said about the prepatellar bursa, for it is certainly the commonest of all bursae to require surgical treatment, and has received most attention. We see it so frequently the seat of enlargement from chronic inflammation due to pressure and from effusion of blood, the result of injuries, that we are perhaps rather inclined to overlook the fact that it may be the seat of tubercle, of gummata, and of septic infection. Indeed, I have seen several cases in which large rounded masses have been removed from the front of the patella on the supposition that they were bursae enlarged and thickened by chronic inflammation, which on examination afterwards proved to be gummata more or less encapsuled. Fortunately, the treatment by operation was not improper. The clean dissection of a hard gumma would give better results than those following internal treatment, which would still leave fibrous material, or possibly adherent scars, over the bone if softening occurred instead of the loose tissue produced after an aseptic operation, so that it may be said that all solid, or semisolid, tumours in or about the prepatellar area, if chronic, should be carefully dissected out, whether simple, tuberculous, or gummatous. But in the case of more acute inflammatory swellings, whether simple or infected, it is better to employ milder measures than excision, inasmuch as extirpation cannot take place in healthy tissue, and painful adherent cicatricial material will be left. In these cases aspiration, or a small lateral incision followed by Bier's cupping glasses or bandages, will usually give a very satisfactory result. If later, when all active inflammation has subsided, a thickened mass is left in place of the bursa this can be removed, and, if done aseptically, the skin will not be long adherent to the patella but will soon slip over it as usual, a new bursa being formed. The best incision for all these operations, in my opinion, is a curved one, above the patella, with the convexity upwards. The scar of this is out of the way in kneeling, and it gives the freest access to the whole of the swelling.

Very acute inflammations of the bursa patellae must always be regarded as serious, and treated very promptly. This is especially the case if the sac has never before been in trouble. In such cases the capsule is usually very thin, and if distended by septic pus is very easily softened and bursts, the result being widespread cellulitis of the leg and thigh, which may even extend into the knee-joint, often with disastrous results. I have seen a neglected case of the kind leading to large abscesses in the popliteal space and high above this in the thigh. No time should in such cases of acute bursitis be lost, but the sac should be freely incised on its lateral aspect, and freely drained after being well flushed out with normal saline solution. When the joint has been unfortunately involved it must

also be freely opened as for other suppurative conditions, and I have seen many cases in which free flushing this way has been followed by recovery of all the movements of the joint.

The next bursa in order on our list is that between the semimembranosus expansion and the inner head of the gastrocnemius muscle. This is subject to the same diseases as all others, but the commonest form is subacute or chronic synovitis which results in distension of the sac to a greater or less extent. The effect of this distension is to produce an aching pain with a sense of weakness in the joint. The swelling can usually be recognized when the limb is fully extended as an ill-defined elastic mass almost directly behind the knee which is soft during flexion and tense during extension. As this bursa usually communicates with the knee-joint its contents in slight flexion can sometimes be squeezed into it when abundant, and can be felt to distend the synovial pouches of the knee. When small this cannot be felt, but in advanced cases is quite demonstrable. In very extreme forms the knee-joint is also much distended with fluid which can be made to fluctuate easily from the joint to the bursal sac and *vice versa*.

In such cases the bursal sac may be enormously distended and reach far down the leg. In a case recently under my care it reached half way down to the ankle, and at the same time the knee-joint was hugely distended in all directions, the fluid passing easily into the bursa on pressure and back again into the knee. In another, operated on recently in private, the same conditions were present, though to a smaller extent. In both of these cases the diseased process appeared from the history to have started in the bursa and furnished fluid to the joint, and not conversely. In most cases when the patients first consult us the swelling behind the knee is very moderate in size, and the symptoms described above are not very marked, but can be easily diagnosed from popliteal aneurysm. But the sense of weakness and dull aching are worrying and disabling. Here the use of discutients and rest will often be enough to remove the fluid and relieve the patient. But when the condition has lasted long and is increasing, it becomes a question whether the morbid process has started in the bursa or the knee-joint. In both the cases referred to the bursa seemed to have been the starting point. This has an important bearing on the treatment of enlargement of semimembranosus sacs. If the conclusion is just—that they may, when neglected, lead to distension and disablement of the knee-joint—early removal is called for. But if their enlargement is only secondary to distension of the articulation, it would be only rational to give our first attention to it. One of the cases just alluded to left little doubt in my mind that the changes in the semimembranosus bursa were the primary cause of very considerable disablement of the knee-joint from secondary distension occurring and recurring for years.

The patient was a gentleman over 50, and very active. Ten or twelve years before I first saw him he began to have discomfort from swelling behind the knee. This yielded to rest and counter-irritants. But of late all exertion was followed by a great enlargement of the sac and a subsequent filling up of the knee, but without pain or heat in the joint. Weakness and uncertainty as to how far he could trust his weight to it were the most marked troubles. The condition of late always yielded to hot-air baths, the fluid disappearing from both situations but returning on very slight overuse. I was requested to remove the semimembranosus swelling, and though it could not be definitely promised that this would certainly relieve the chronic or recurring effusion into the knee, I undertook the operation, hoping that it would do so. The sac was completely dissected out until the posterior surface of the inner condyle was exposed, at which point the communication with the knee-joint was found. The result was an entire disappearance of the periodic filling up of the knee. This seemed to furnish a proof that the fluid in the joint was fed by an excessive secretion in the semimembranosus bursa. The sac removed was thickened and hyperaemic in patches but smooth.

The last case on which I operated for the condition in question gave, I think, further evidence as to the part played by morbid conditions in the semimembranosus bursa in causing distension of the knee-joint.

The patient was a man about 40, recently in our hospital for a distension of the knee-joint which I have never seen equalled. The condition was painless, and there were no signs of inflammation in or around the knee. But not only were all the pouches of the articulation hugely increased in area and very tense with fluid, but the semimembranosus bursa was also enormously enlarged, and reached more than half-way to the ankle. On pressure it was clear that the fluid in it passed into the joint, and pressure on the latter forced it back easily into the bursa. Through a long vertical 8-in. incision a little to the inside of the middle of the popliteal space the whole sac was dissected out unbroken except at one thin spot. It started above behind the inner condyle of the femur, and reached, as stated, for about five or six inches downwards beneath the gastrocnemius. Its walls were thickened generally, in some places very much so, but there were thin patches in it besides. In dissecting it up it narrowed down to a neck as thick as the index finger, and terminated over the posterior curve of the inner condyle of the femur, where it was continuous with the lining of the knee-joint. Here it was cut away. It contained about a pint of thickish yellow synovium, and from the opening over the condyle a large quantity of the same fluid was squeezed out of the knee-joint. When laid open the sac after removal was seen to be covered in large patches with folds and villous processes of synovial membrane of a deep pink colour. These were quite analogous to those folds and fringes frequently found in the knee-joint itself in cases of chronic inflammation. Whether the synovial membrane of the joint was in a similar condition we cannot yet tell, as the man was very anxious to take up his employment, and left the hospital as soon as our wound was soundly healed *per primam*, though the joint still contained a large amount of fluid and I was anxious to operate on it directly if the removal of the large bursal tumour did not relieve it. But the state of the lining of the bursa was quite sufficient to account for the large amount of synovium both in it and in the joint. The thickened synovial membrane was hyperaemic and very largely increased in area. What the nature of the irritant which produced the hyperaemia was we are unable to say. The patient seemed fairly healthy; no organisms were found in the fluid, which also looked normal, and sections of the lining membrane showed no tubercle.

Of course it is conceivable that there may have been undiscovered toxins in the blood, but in the absence of these we are thrown upon the theory of overuse or strain. But the more carefully the studies of joint inflammation are prosecuted the more probable does it appear that many are of bacterial origin even where no organisms can be found in the fluids of the joint. A very careful search in the synovial tissue will sometimes discover them when the fluid is sterile. This and other clinical facts seem to me to suggest the conclusion that synovial tissues possess some powers strongly resistant to bacterial growth, that the hyperaemic reaction to their presence evokes this power and leads to their destruction, but that sufficient of their toxins remain behind to keep up the irritation for a shorter or longer time. What is known now of gonorrhoeal affections of joints, for instance, seems to prove this. We find in a gonorrhoeal joint the specific gonococcus by aspiration. We treat it, say, with a Bier's bandage and aspirate again some days later and find the fluid sterile. But it usually requires considerable time before the joint becomes quite normal again. And yet it does so in many cases so treated. Here there can be no pretence that we have by our aspirations withdrawn every single colony of organisms. There must be some antagonistic process going on in the cavity itself which not only is capable of destroying the organisms themselves, but of ultimately eliminating their toxins. This same clinical experience is seen in the case of synovitis due to other infections than that by the gonococcus—for example, the pneumococcus. But the resistance may be feeble or the organism of more than ordinary virulence, and in either case the process of repair may be prolonged unless we interfere by surgical help. This help may be given to the joint in several ways. The production of increased hyperaemia in it by painting with iodine, by fomentation, or by Bier's bandage, are among these. On opening the cavity, evacuating its contents, and presumably their toxins, and washing out with various fluids, which mildly stimulate without destroying the vitality of the lining cells, may be effectual. But in the case of a bursa such as that over the semimembranosus expansion which is becoming chronically distended and thickened, the best treatment is to dissect it out cleanly provided there are no signs about it of recent acute inflammation. In this way we may ensure that the knee-joint will not be damaged by frequent overflow from the bursa into the joint and gradual distension of its capsule.

Chronic inflammation of the semimembranosus bursa may also give rise to loose bodies within the sac. I have before me now several which were removed some years ago from this sac. They are about as large as small beans. They may probably have several different modes of origin as is the case in other similar cases of loose bodies. They may be cartilaginous and be derived from cartilage cells which are often normally present in synovial fringes. They

may be fibrous and derived from hypertrophied fringes or villous excrescences such as were present in the case just related. They may be fibrinous from inflammatory exudations of the sac which have been rolled up into pellets in the movements of the part. Finally, they may be due to blood clots decolorized and inspissated in the course of time and moulded by movement. Obviously, the removal of the whole sac would be the best treatment in such cases, as not only would the bodies themselves be taken away but also the diseased tissue, which might reproduce similar ones if they were simply evacuated. So far I have not come upon primary acute infective bursitis in this sac. Nor have I met with tuberculous disease of it, though frequently a tuberculous disease of the knee has involved it secondarily. The possibility of such infections with tubercle must, however, be always kept in mind when the semimembranosus sac is enlarged, and if the swelling resist all of the usual remedies, there is an extra reason for its extirpation in this suspicion. This operation calls for very great care and deliberation on account of the anatomical relations of the bursa. A long skin incision a little to the inside of the mid-line of the popliteal space is quite safe. But in the deeper dissection a very close watch must be kept to avoid the internal popliteal nerve and the artery and its branches. But, by keeping close to the wall of the sac after reaching it (which is usually an easy matter, if it be enlarged) on the inner side of the internal head of the gastrocnemius, it can usually be shelled out of the loose tissue in which it lies without much difficulty. It should be preserved unopened to the last moment, as it is easier if this be done to make out its boundaries and deal with the synovial sac, all of which ought to be removed. Behind the inner condyle, where the sac has a communication with the synovial membrane of the knee-joint, it will, of course, require to be eventually opened. But all the dissection should be finished before the narrow neck of communication is severed. The opening into the knee-joint requires no attention in the way of stitching up, and may be left to itself. If carefully carried out there is little or no immediate bleeding or subsequent oozing, and the wound can be completely closed without any drainage, as was done in the two cases referred to. Flawless primary union followed in both cases. There was some difficulty in the last case in dissecting out the large sac from beneath the gastrocnemius. But as it was thickened and tough it was quite distinguishable from the tissues around, and no damage was done to any structure of importance.

Next in order of frequency of occurrence is enlargement of the bursa under the expanded insertion of the sartorius muscle. Of this swelling I have seen several instances. The tumour has been well defined—oblong in shape and elastic. In the cases in which I have excised it it was about the size of an average sausage, and could be extirpated unbroken. The lining was smooth and looked like ordinary healthy synovial membrane. I have never seen it affected with tubercle primarily, but recently there has been a case in our hospital operated on by one of my colleagues, which showed, I am told, a distinctly tuberculous infection. A specimen which can be found in the museum of University College Medical School shows another variety of enlargement of this bursa. It is flattened, and fibrous, like a prepatellar sac. Apparently it was due to chronic inflammation, or possibly to organized blood clot.

I am not sure that an enlargement of the gracilis bursa has ever come in my way nor of that between the biceps near its insertion and the external lateral ligament. But I have seen and operated on a case where the bursa under the ligamentum patellae was enlarged and painful, and required evacuation. This did not in this case communicate with the knee-joint, as is often the case, but was completely shut off. As well as I can recollect, it was a septic infection of the bursa through the blood, and the fact that it did not communicate with the knee-joint was fortunate.

In this brief sketch of the enlargement of bursal cavities about the knee my wish has been to direct attention not only to recognized swellings which have received more or less study, but also to suggest that in some obscure conditions in this region an explanation may be found in enlargements of synovial tracts which are sometimes forgotten. What these may be due to I have also hinted, and how they may ultimately seriously affect the knee joint proper if neglected. In the case of enlargement of some of them I have strong grounds for the belief that they are the origin of those large cystic swellings which have been, I think erroneously, believed to be due to hernial protrusions of the synovial membrane of the knee-joint. As to treatment, we are safest when we regard them as rudimentary joints, and deal with them as such. And as it is now recognized that joints may be dealt with freely by operation with a good prospect of the preservation of their functions, so may these bursal sacs.

SOME PHARMACOLOGICAL EFFECTS OF THE STRONG SULPHUR WATER (HARROGATE).*

SECOND PAPER.

BY DAVID BROWN, B.Sc., M.D.LOND.,
HARROGATE.

(Abstract.)

DR. DAVID BROWN, after giving a brief account of the results detailed in the first paper of the series, which was published in the BRITISH MEDICAL JOURNAL of August 20th, 1910, went on to say that those results important for all interested in Spa treatment generally, and in Harrogate in particular, needed further tests for their complete establishment: first in the way of direct verification by repetition, and secondly, from the point of view of obtaining more complete data, ultimately embracing observations on all the excreted substances so far as at present they are known.

The points taken for confirmation were:

1. The reality of the diuresis and its amount.
2. The rise in the excretion of total nitrogen in the urine.
3. The rise in excretion of body tissue (or endogenous) uric acid during treatment.
4. The rise in excretion of uric acid arising from the food (exogenous) as shown by the ingestion of measured amounts of pure hypoxanthin in regularly repeated doses.
5. The rise in excretion of body tissue (or endogenous) kreatinin as an index of muscle metabolism.

The new points observed were the following:

6. The fate of the sulphur water as regards the urinary and bowel excretions, and the ascertainment of any relationship, direct or inverse, between the amounts of the two excretions.
7. To ascertain if any change occurred in the excretion of phosphates as an index of tissue change.
8. To ascertain whether any change in the amount of indican (indoxyl sulphuric acid) took place as a result of the course of sulphur water.
9. To examine the blood pressure at frequent intervals and to register any variations in the same.
10. To ascertain whether the amount of potassium sulphocyanate in the saliva altered during the course of sulphur water.

The most exact biochemical methods of analysis were used, and the personal equation was eliminated as far as possible by observing the rule of awaiting the termination of the whole of the experiments before attempting to calculate, even in the roughest way, any of the data obtained in the laboratory.

The subject, the same as that of Case I of the previous paper, took the following diet on each of twenty-one successive days:

14½ oz. bread (white).
25 oz. milk.
Five eggs.
8 oz. rice pudding.
8 oz. macaroni cheese.
2½ oz. butter.
20 oz. distilled water (aërated).

On the morning of the twelfth day of the experiment, between 8 and 9 a.m., 580 grams (20 oz.) of the strong sulphur water was taken, and this was repeated each day up to the nineteenth day. On the twentieth and twenty-first days 18 oz. were taken, and on the twenty-second, 16 oz.

All the doses of sulphur water were taken fasting.

On the eighteenth, nineteenth, twentieth, and twenty-first days a dose of 0.3 gram of hypoxanthin was taken after 5 o'clock in the afternoon.

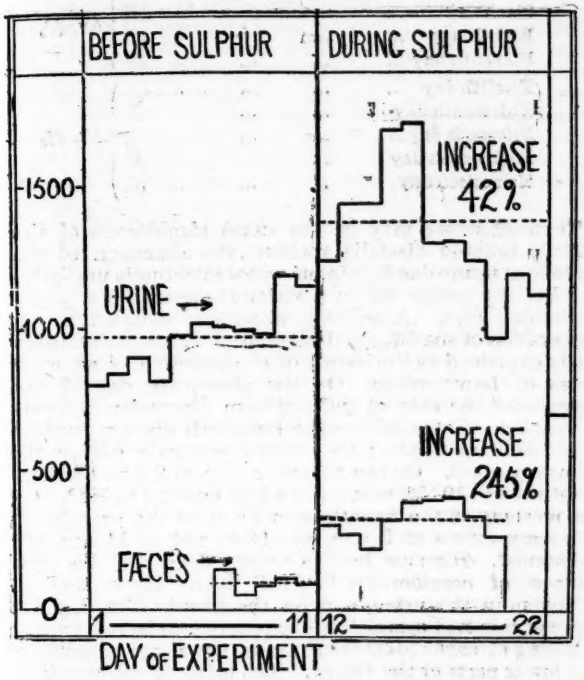
On the twenty-first, 10 oz. extra of distilled (aërated) water were taken to relieve thirst. On the twenty-second and twenty-third days the diet consisted of

Milk, 40 oz.
Bread, 14 oz.
Aërated distilled water (unlimited in quantity).

* The paper was read before the Section of Balneology and Climatology of the Royal Society of Medicine.

The points observed and shown on the accompanying diagrams were then taken.

CHART A.—*Illustrating Points 1 and 6. Urine (in c.cm.) and Faeces (in grams).*



1. The average amount of water passed in the eleven days of the presulphur stage was 970 c.cm. (3½ fluid ounces roughly correspond to 100 c.cm.). During the first nine days of the sulphur period the amount averaged 1,374 c.cm., a daily excess over the first period of 404 c.cm., or 42 per cent. Previous cases showed a diuresis varying from 25 to 110 per cent. The high percentage refers to a case of recurrent gout.

6. *Faeces.*—The weight of faeces from days 7 to 11 averaged 94 grams; from days 12 to 20, 324 grams, a daily excess of 230 grams, or 245 per cent.

The 580 grams of sulphur water taken daily were completely represented in the urinary and faecal excretions thus:

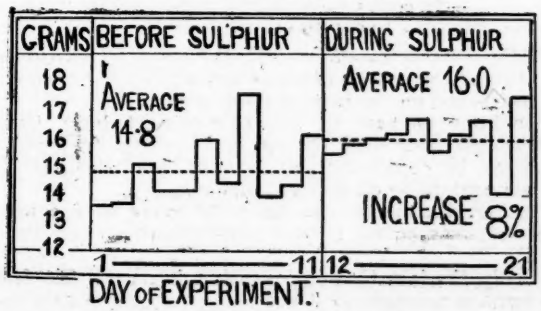
Excess urine	...	...	...	404 grams.
Excess faeces	...	...	...	230 ,,
				634
Sulphur water taken	...	...	...	580 grams.

This leaves an excess of 56 grams per day, and roughly amounts to 500 grams, or rather more than 1 lb. weight of excess excretion in nine days.

The experiment, then, shows the existence of a definite and positive diuresis, in addition to the increase of bowel action. It is also noteworthy that the amounts of urine and faeces do not vary *inversely*, but that the days of the greatest bowel action were in general those of maximum diuresis.

During the first eleven days the weight of the subject, observed at frequent intervals, was reduced from 10 st. 8¾ lb.

CHART B.—*Total Nitrogen (in grams).*



to 10 st. 8¼ lb. During the remaining twelve days the weight was reduced to 10 st. 5 lb. Of this amount of weight (equivalent to 1,500 grams) about 500 grams are accounted for by the excess of urine and faeces excreted during the first nine days of the sulphur water period, and probably the profuse sweating on the nights of the twenty-first and second (twenty-four hour periods) account for at least an equal amount. This leaves something like 500 grams (1 lb.) unaccounted for, a loss covered by the normal day-to-day variations in body weight.

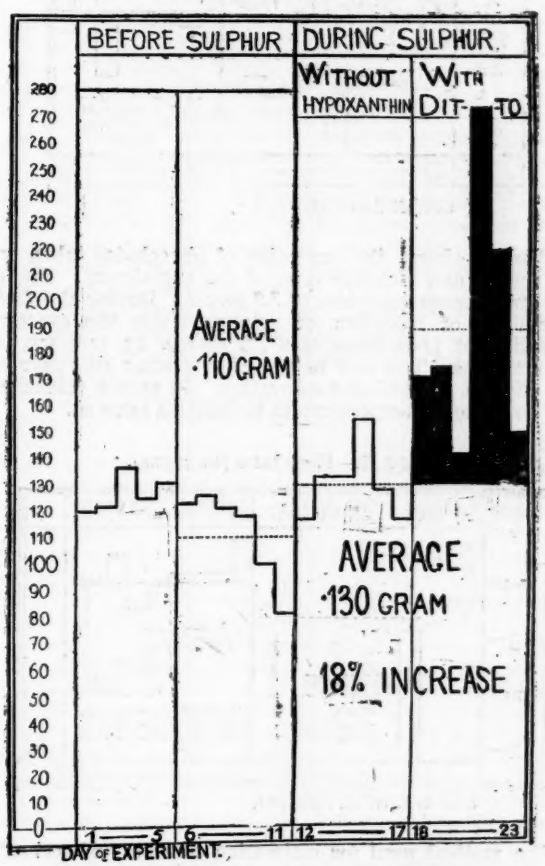
Chart B shows an average rise of 8 per cent. in the total nitrogen during the sulphur-water period—that is, from 14.8 to 16.0 grams per diem (the highest rise in previous experiments was 10 per cent.).

Chart C relates to body tissue (endogenous) uric acid; measured as nitrogen:

		Uric Acid.
Average days, 1 to 11	... 0.110 grams,	or 0.330 gram.
,, 12 to 17	... 0.130 ,,	or 0.390 ,,

Increase, 18 per cent.

CHART C.—*Uric Acid in Milligrams of Nitrogen.*



This chart shows also the excess excretion of uric acid following the ingestion of hypoxanthin as detailed above. It had occurred to me that the exhibition of single doses of pure hypoxanthin (as in the earlier experiments) might have given an exaggerated result as regards the increased excretion (80 per cent.) of uric acid of food origin during the course of sulphur water, seeing that the persons experimented on had previously been for a considerable period on a non-purin diet. It was hoped to check these results by the method of repeated administration of moderate doses of pure purin (hypoxanthin).

The chart shows an average excess excretion of uric acid due to the doses of hypoxanthin during the six days (18 to 23) of 0.058 gram of uric acid nitrogen—equals 0.175 uric acid—a total in the whole period of 1.05 grams of uric acid. This corresponds to about 80 per cent. of the ingested hypoxanthin, a result almost identical with that obtained from the administration of single doses of hypoxanthin during the administration of sulphur water.

Thus the ordinary oxidation of purin bodies to uric acid is practically doubled during the taking of sulphur water.

Chart D, relating to the endogenous kreatinin, shows that the average (days one to eleven) was 2.47 grams

a day. There was no noticeable fall as a result of restriction to a non-purin diet. During the first nine days of administration of sulphur water the average excretion rose to a point over 3 grams a day, a total increase of 13 per cent. The proportion of kreatinin to total nitrogen increased from 18 to 19 per cent. in the two periods. A measured amount of walking exercise (3 miles) was taken daily, and the subject of the experiment did from twelve to thirteen hours' laboratory work a day.

CHART D.—*Kreatinin (in grams).*

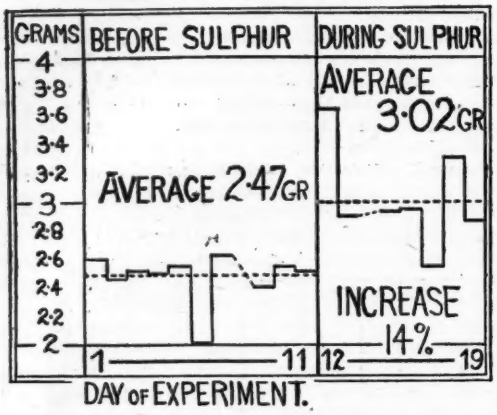
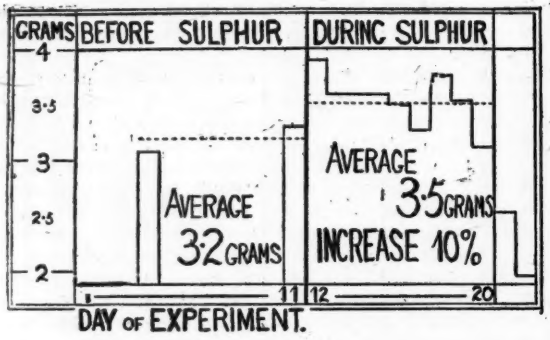


Chart E shows the excretion of phosphates taken on the fourth and eleventh days of the experiment. There was an average excretion of 3.2 grams. During the first nine days of ingestion of sulphur water the average excretion of phosphates was 3.5 grams, an increase of 10 per cent. The fall in phosphates after alteration of the diet is somewhat noteworthy. It nearly coincided with the rise in temperature to be detailed later on.

CHART E.—*Phosphates (in grams).*



The method used for estimating indican (indoxyl sulphuric acid) was the most exact yet devised—that of Dr. Oerum (Copenhagen).[1] The total amount on four of the last five days of the pre-sulphur water period amounted to 5 mg. a day. During the first nine days of treatment by sulphur water the average was nearly 10 mg. a day, an increase of 87 per cent. This result was totally unexpected, and requires confirmation. It seemed probable, from *a priori* reasoning, that the action of sulphur water would decrease the absorption of any of the derivatives of the aromatic nucleus of protein—that is of tryptophane. Experiments in which tryptophane is fed by the mouth to normal subjects do not apparently lead to any increase in the excretion of the aromatic bodies in the urine. Direct injection of this body, however, into the lower portion of the small intestine leads to an immediate increase of the aromatic sulphates of the urine.

Now sulphur water hurries on the contents of the stomach and upper small intestine, and probably brings to the bacteria of the lower intestine a larger proportion of tryptophane containing proteid than would reach this part of the intestine under more normal conditions. The action of calomel in increasing the excretion of bodies of the indoxyl group has probably a similar explanation.

The blood pressure was very kindly taken for me by Dr. Edgecombe of Harrogate, time, place, and conditions being as nearly uniform as possible. The lower part of the fractions refers to systolic pressure, the enumerators to the diastolic pressures. An atmospheric manometer was used.

Fifth day	$\frac{100}{132}$	Av. $\frac{99}{130}$
Sixth day	$\frac{100}{130}$	
Eighth day	$\frac{100}{130}$	
Eleventh day	$\frac{95}{127}$	
Twelfth day	$\frac{95}{130}$	Av. $\frac{93}{128}$
Thirteenth day	$\frac{90}{126}$	
Fifteenth day	$\frac{90}{130}$	
Eighteenth day	$\frac{93}{128}$	
Twentieth day	$\frac{100}{128}$	

Thus whatever may be the exact significance of the slightly lowered diastolic pressure, the alteration of the systolic pressure due to sulphur water is virtually negligible in a healthy person fed on a strictly measured non-purin-containing diet. A solitary exception afforded by an observation of the twentieth day can, I think, be satisfactorily explained as the result of the ingestion of repeated doses of hypoxanthin. On the nineteenth day of the experiment the subject suffered from depression and considerable headache, and on the twentieth his temperature was 100.2° at 2 p.m.; he sweated profusely during the following night. On the following day at 2 p.m. his temperature was 102·6°, rising the same evening to 103°. On the morning of the twenty-second day of the experiment the temperature at 8 a.m. was 99·6°, and at 11 a.m. was subnormal. His skin had an icteric tinge, and he complained of considerable lumbar pain. There was no albumen in the urine, and on the twenty-fifth day the lumbar pain had completely disappeared, to be replaced by a feeling of considerable stiffness in the flexor muscles of the lower parts of the thighs. The urine on the twentieth and twenty-first days of the experiment showed enormous deposits of uric acid crystals, amounting on the twenty-first day to 0.3 gram. The feverish attack was not followed by any marked debility. This, I take it, is the clinical picture of a true uric acid storm, and was the cause of the increased blood pressure of the twentieth day.

The late Dr. Samuel Fenwick many years ago pointed out that in certain conditions in which the function of the liver was abnormally performed there was a lessening amounting in some cases to almost entire absence of sulpho-cyanate in the saliva.[2] As gout was one of the conditions in which this lessening occurred, I instituted a colorimetric method to show the influence, if any, of sulphur water on the excretion of this body in the saliva. A rise was noted during the first eleven days of the experiment, but sulphur water had no obvious effect upon the quantity of sulpho-cyanate excreted in a given time, although the amount of saliva excreted in the test time (five minutes) was rather lessened during the sulphur water period.

CONCLUSIONS.

The action of sulphur water may at present be best summarized as one of increased oxidation and tissue change. That it influences general metabolism profoundly is shown by

1. The increased total nitrogenous output (8 per cent.).
2. The increase in the excretion of the phosphates (10 per cent.) on a strictly regulated diet identical from day to day in every particular.

Further, the increase in excretion of endogenous kreatinin (13 per cent.) proves its effect on the whole musculature of the body—and on the hepatic functions.

The large increase in the excretion of body tissue (endogenous) uric acid (18 per cent.) proves its powerful influence in increasing the rate of metabolism of the nuclein-containing elements of the body.

Further, the increase in the total solids of the urine also definitely points in the same direction (see Paper No. 1).

Finally, the fact that hypoxanthin is recoverable from the urine as uric acid to a percentage almost double that of the normal and in two-thirds of the normal time, is very plain evidence of the greater extent and increased rate of oxidation going on in the body generally, and in the liver in particular. In the present state of knowledge this action can only be explained as due to the enormous

stimulation of the xanthin oxidase of the liver. Incidentally I may remark that the body becomes capable of dealing with increased quantities of these materials—a point of some interest with regard to diet in gout.

Now, as to whether these points have any direct bearing on the classes of cases most likely to receive benefit at Harrogate, I must leave to the criticism and judgement of others, but I may bring to recollection some of the main points of recent research with regard to gout and arthritic troubles.

Brugsch and Schittenhelm have shown (1) that gouty patients kept on a non-purin diet and dosed with measured amounts of hypoxanthin excrete the hypoxanthin as uric acid both more slowly (five to six days) and in smaller percentages than is normal. (2) They assert that the administration of hypoxanthin in gouty patients may provoke an attack of acute gout.

Dr. Gowland Hopkins some years ago showed that the total uric acid output is lower in gout than is normal, and later Dr. Mallory[3] has shown in a small series of cases that this is true whether the uric acid is of endogenous or exogenous origin. In Mallory's cases only 8 per cent. of hypoxanthin is recoverable as uric acid.

The results of my inquiries into the action of sulphur water in approximately normal subjects tend to show that in all these points sulphur water exerts a profound influence.

A very prominent characteristic in some cases of gout—the diminution in the amount of urine passed (it is often well under 20 oz. in the twenty-four hours)—is very rapidly relieved by treatment with this water, the diuresis amounting to well over 100 per cent. In such cases also the specific gravity of the urine does not vary inversely as the amount passed; on the contrary, the specific gravity is often highest at the height of the diuresis, the increase of the total solids being relatively enormous.

REFERENCES.

[1] *Zeit. f. Physiol. Chem.* (Hoppe-Seyler). [2] *Phil. Trans.* [3] *Journ. of Path. and Bact.*

BALNEOLOGICAL TREATMENT OF DISEASE.

By W. RINGROSE GORE, M.B.,

LLANDRINDOD WELLS, WALES.

SPEAKING generally, there are two classes of cases that resort to spas for treatment—first, those that are not suffering from any definite disease, but from the results of living at high pressure, either in acquiring or expending wealth, who obtain, through the freedom from worry, regular hours, and plain food which form part of the regular régime of a spa, a restoration to their usual health. The other class are those that come for the relief of some definite disease.

We know that practically all disease is bacterial in origin, that inflammation may be defined as the tissue reaction to bacterial invasion, and that those chronic inflammatory diseases that form the majority of the cases that resort to spas for treatment are microbic; yet it has not been properly appreciated that the methods of treatment in use in the majority of spas are those most suited for the treatment of chronic bacterial disease, especially when it affects the digestive tract.

I will assume as a working hypothesis that such diseases as gout, rheumatism, rheumatoid arthritis, colitis, the various forms of neuritis, glycosuria, arterio-sclerosis, dyspepsias, and most skin diseases, have a toxic basis probably intestinal in origin.

The study of the varying pathogenicity of the intestinal bacteria shows that the bacteria which may be harmless inhabitants of the various secretions of the alimentary canal become at once pathogenic on a change in their environment—that is in this instance a change in the character of the secretion. The virulence of bacteria may depend upon the medium in which they grow. For example, a change in the nasal secretion due to the reflex effects of chill causes an increased growth of those bacteria normally present in the upper air passages, which at once become pathogenic, producing a common cold. A similar sequence of events takes place, I believe, in the upper digestive tract; owing to gastro-duodenal catarrh brought on by errors in diet, a change takes place in the normal gastro-intestinal secretions, and a bacterial growth takes place in the upper intestinal tract which should in health be sterile, leading to the absorption of more virulent toxins. That this increased bacterial growth really does take place is known from the indol reaction in the urine.

The normal secretions of the body cavities inhibit the growth of those bacteria that are usually present in these situations, but if the character of the secretion is altered, this inhibitory power is lost, and a bacterial growth takes place, producing a catarrhal condition which leads to the production and absorption of bacterial toxins, and is the cause of most of the chronic diseases that come to spas for treatment.

Direct antiseptic treatment of this condition is useless; vaccines are occasionally useful, but the scientific treatment is to restore to the secretions that inhibitory power over the growth of bacteria which they have lost. This is what spa treatment really does. The most common form of spa treatment is the early morning drink; the most popular spas are those in which a fairly large quantity of water is drunk before breakfast when the stomach is empty. The most effective of these waters are not highly mineralized, and depend upon the quantity of fluid drunk for their therapeutical effects; at some of the spas, such as Contrexéville, six or eight pints may be consumed during the early morning walk.

That water drunk when the stomach is empty passes directly into the intestine has been well shown in recent *x* ray work; consequently, any water then drunk acts as a gastro-intestinal douche, and by its purely mechanical action limits bacterial growth in the upper intestinal tract and helps to restore a catarrhal mucous membrane to a normal condition. A normal saline douch is the best way of restoring an infected mucous membrane to a normal condition, and this spa treatment is a long continued saline douche to the upper intestinal canal, for patients at these spas spend one or two hours sipping what is practically a normal saline solution.

It is the length of time required that makes this form of treatment difficult in private practice; it is very easy to spend an hour sipping hot water, walking about with genial companions who are all doing the same thing; quite a different matter in the seclusion of one's own home to spend an hour drinking and wait another half-hour for breakfast.

Intestinal catarrh with increased bacterial growth of the upper intestinal tract, which should in health be sterile, is quickly relieved by this saline douche; the contents of the intestine are mechanically washed downward, general peristalsis of the intestine is started by the direct stimulation of the salt in solution, which induces a more healthy secretion from the intestinal glands and removes the catarrhal condition that exists, as the same method of normal saline douching does in the case of other catarrhal mucous membranes. That this is the actual process can be proved by the indol test. The presence of indol in the urine is evidence of abnormal putrefactive changes in the upper intestinal canal associated with intestinal catarrh.

The effect of an intestinal douche on a case of intestinal catarrh showing the indican reaction is almost immediate. The indican is at once reduced in amount and gradually disappears, showing that the catarrhal condition has been cured and that the jejunum has again become sterile.

The study of the intestinal bacteria is still in a backward state, and, while we theoretically ascribe many diseases to increased or altered growth of this group of microbes, we are not yet able to place each disease. Gout, rheumatism, rheumatoid arthritis, colitis, glycosuria, some cases of eczema, different forms of neuritis, arterio-sclerosis, are a group of diseases which have a certain ill-defined connexion with each other, perhaps best shown in their hereditary relationships. They are, it is now generally believed, toxaemias of bacterial origin, they all have some digestive abnormality, they are all relieved by gastro-duodenal lavage.

The other effect of spa treatment is the protection of the body cell from the effect of toxic substances circulating in the blood by their dilution and by increasing the rapidity of their elimination; the water drunk is rapidly absorbed as it passes through the intestines and is eliminated through various secreting organs, increasing their activity, and especially causing a greatly increased action of the kidneys.

Thus spa treatment produces two definite effects upon the bacterial growth that is the cause of most of our diseases: it prevents the growth of a large class of bacteria in the intestinal canal, and it causes the elimination of those toxins already circulating in the blood. All the accessory modes of treatment, the various baths and forms of massage, are designed to the same end; they all in some way help the circulation through the cell spaces and increase elimination through the various organs of the body when applied generally; locally applied they cause an increased flow of serum through the tissues treated, which is again a factor in antibacterial treatment, though the increased resisting power given to the tissues by a flooding out of serum should also be taken into account.

COTTAGE NURSES FOR RURAL DISTRICTS.*

BY

HENRY HICK, L.R.C.P.ED., M.R.C.S.ENG.,

NEW ROMNEY.

WE have heard a good deal lately of the trouble there is with district nurses thrust on the profession and the community by what I would call the "Lady of Improvidence," who pays the piper and wants to call the tune.

The subject of cottage nursing is one which must be of deep interest to any one practising in rural districts. I should be inclined to say among the poor anywhere, but it is so long since I was engaged in town practice that I prefer to speak only of those conditions of which I have had recent experience.

Nursing of the poor, as of the better classes, is a necessity, but in considering the subject, several matters must be borne in mind. While the nursing is the main need, there are other things little less important.

When the wife and mother is in bed, it is little use having even a first-class nurse to attend to her if she is worrying all the time as to what is happening to her husband and children. What is wanted is a nurse who, in addition to attending the patient, will see to these matters. A cottager cannot afford, out of a wage of some 15s. to 18s. a week, to pay for a nurse and a housekeeper too.

The nurse must be competent within her limit; she must be able to do without waiting on; she must be able to keep house, see to the comfort of the husband and children, get them their food, send the children properly dressed to school, and generally take the mother's place, and so relieve her of all anxiety.

Her attendance must be so constant as to prevent friends and neighbours interfering with the treatment, removing dressings to see how a wound is getting on, or to show it to any interested visitor. Above all, she must be cheap, or she will not be available for the class of persons I have in mind.

The nurse must not be provided by charity, or the poor will be pauperized, to their own and every one's disadvantage. The ordinary trained nurse is quite beyond the means of these people, and the district nurse does not meet other requirements in the case. She will not cook for the family, nor get the children ready for school. A district nurse could not work in a sparsely populated district—the distances are too great for her to attend more than one or two patients a day.

The cottager should be able to pay for the services of the nurse when well, for when ill he has more to do to meet the extra cost of living than he can well manage.

The nurse should be provided by the community, not by any "Lady of Improvidence," under whose guidance she would work—an arrangement which generally appears to lead to trouble with the medical men. In my opinion, it is essential that any nursing association which is to be a success, and work smoothly, should be on provident lines, apart from the unquestionable benefit to the people from this method of working. As soon as charity is introduced the door is opened for the interference of the larger subscribers, who, sooner or later, will want to run the scheme on their own lines, without any regard to the interests of the patients or the doctors.

These needs are met by the Holt Ockley system, which was founded at Ockley by Miss Broadwood in 1883. It is a provident system, each member paying his share of the estimated cost of the nurse. In my experience, the figure at which the subscriptions are fixed will, I am sorry to say, hardly cover this cost. Miss Broadwood says she had at Ockley great difficulty in fighting the idea that the poor should have everything found for them, instead of being encouraged to provide for themselves. We have found that, with encouragement they are quite willing and able to do this.

The central office told us, in the first instance, that one nurse would nurse the sick of a population of 1,100, but when the maternity nursing is added, we find that the number of nurses needed is much larger. Acting on the figures supplied by the central office, we fixed our subscription at 4s. a year as a minimum for the labouring class, rising gradually to 21s. for gentry; and the hire of the nurse rises proportionally, the labourer paying 2s. a week and the gentry 15s. when the nurse is employed. These fees are doubled after the nurse has been at a case for three weeks, unless a certificate from the doctor saying that a longer attendance is necessary, is shown.

The nurses are taught to make a bed, cook, wash and dress a patient, do ordinary dressings, take temperatures, pass a female catheter, and note symptoms; to nurse a midwifery case, and, most important of all, to do as they are told. Some of them have a midwifery certificate, but most of them hold certificates for monthly nursing. No nurse is allowed to attend without a medical man, and we have not had any trouble with nurses wanting to practise medicine or midwifery.

All the medical men in the district were invited to join the committee, and I and my colleague did. The central office suggested that in some districts at least one of the nurses should be a certified midwife, but we pointed out that there was no demand in the district for midwives, and, further, that if the association employed midwives, we should expect it to make provision of payment of any medical man called to her assistance by a midwife, and that the Poor Law allowance of two guineas would be the smallest fee we should be prepared to accept. (The model rules now provide for the payment of the doctor by the association.) The committee decided not to employ midwives as such.

The nurses are women of the cottager class, and generally are well content with their position and do good work; the trouble is that the younger ones get married, and the elder ones get ambitious and want to train further.

Each nurse receives four to six months' training at a cost to the association of from £14 to £21. This amount is repaid by the nurse by the acceptance of a smaller salary for the first three years. A small sum is also retained by the association to form a bonus, which is given to the nurse at the end of three and a half or four years' service. As showing somewhat the progress of our association, I may say that the first year's subscriptions amounted to £31 12s. 5d., and the fees for actual nursing done, £6 10s. 6d. Last year the subscriptions were £58 9s., and the fees £71 5s. To put it in another way—in the first year 9 cases were nursed out of 105 subscribers; in the second year 26 cases out of 110, the nurses being engaged for seventy-two weeks' nursing. In the third year 28 cases were nursed for ninety-two weeks out of 124 subscribers; the fourth year 48 for 127 weeks out of 127 subscribers, and last year 57 for 156 weeks out of 221 subscribers. These figures will serve to show how the nurses increase in favour as they are known.

Each association covers a number of parishes, and supports one or more nurses, who are not allotted to separate parishes, or districts. Any nurse may be sent to any part of the district where she is required, so that if there is no work in one part of the district, the nurse is not wasting her time, but is working where she is needed. The work of the association is controlled by a committee consisting of president, secretary, treasurer, and one or more committee ladies from each parish. The duties of the committee ladies are to collect subscriptions and fees in their parishes, to forward applications for nurses to the secretary, and to pay occasional visits to the house where a nurse is employed, in order to see that both patient and nurse receive fair treatment. All fees are paid through

* Read at a meeting of the Ashford Division.

the committee lady to the treasurer, and nothing to the nurse herself—she receives a regular wage.

Under the auspices of the central association there have been established a number of lending groups for the interchange of nurses. The more this can be extended in the county, the better for the associations working in the county.

We have borrowed nurses from all over the country, and the travelling expenses become heavy where the borrowed nurse has to be brought from a distance.

There are five associations in the county affiliated to the Holt Ockley Association, and I am satisfied that the more we get established the sooner we shall cease to hear of the necessity of midwives, and of the everlasting difficulty with the "Lady of Improvidence."

THE TRANSMISSION OF TRYPANOSOMA LEWISI BY THE RAT-FLEA (CERATOPHYLLUS FASCIATUS).

BY

E. A. MINCHIN AND J. D. THOMSON.

(From the Protozoological Laboratory, Lister Institute.)

IN a recent number of this JOURNAL[1] Mr. Strickland has communicated the results of some experiments carried out by him on the question of the mechanism of transmission of *Trypanosoma lewisi* from rat to rat by the rat-flea. Mr. Strickland succeeded in infecting clean rats by contaminating their food with infected fleas, and arrives at the following conclusions, amongst others:

1. Infection of rats with *T. lewisi* is caused by the rat's act of eating infective fleas.
2. It is not caused by contamination of the rats during a short time, nor by their being bitten by the fleas.

We have been making experiments on the same subject for over a year, and hope soon to publish a full account of our results with regard to the transmission of the trypanosome by, and its development in, the rat-flea. Since, however, Mr. Strickland has forestalled us with regard to one of our results, and has drawn from it conclusions with which we cannot agree, we wish to state (1) that we have also found that rats can be infected by devouring infected fleas, (2) that we do not consider this to be the sole nor even the usual method by which the transmission of the trypanosome from rat to rat is effected by the flea.

I.

In the dissection of fleas performed by us with a view to following out the development of the trypanosome we have frequently found cysticercoids in the body-cavity of the flea, and this fact suggested at once that the rat infected itself with the tapeworm by eating infected fleas, a supposition which was confirmed experimentally by our colleague Dr. W. Nicoll.[2] From this it was evident that it must be a common habit of rats to eat their fleas, and it naturally occurred to us that they might infect themselves with the trypanosomes by the same method. We therefore carried out last year several feeding experiments, taking fleas from the infected breeding-cage, that is to say, from a breeding-cage for fleas in which a rat infected with *T. lewisi* is always kept in order to feed the fleas. The fleas were killed by crushing their heads with a forceps, and then they were mixed with sop of bread and milk and given to rats. Some of these experiments gave a positive result, some did not. Dr. Nicoll obtained similar results incidentally in the experiments he carried out on the infection of the rat by the cysticercoids of the flea. He made use of fleas from our infected breeding-cage in his experiments, for the reason that the cysticercoids had been found in fleas from that cage. It will suffice for the present to quote the data kindly supplied to us by Dr. Nicoll.

1.

Five rats born November, 1909.
Two fed with fleas from the infected breeding-cage daily from January 26th to February 14th.
On the latter date both had large infection of trypanosomes.
Other three control rats showed no trypanosomes.

2.

Four rats 2 months old.
Two fed daily with fleas from the infected breeding-cage, from April 4th to 22nd. Both showed trypanosomes at the end of a fortnight.
The other two rats showed no trypanosomes.

Dr. Nicoll's experiments thus furnished decisive confirmation of our previous experiments, showing that rats could become infected with *T. lewisi* by eating infected fleas. Other experiments, however, which were carried on by us at the same time led us to the conclusion that in Nature infection of the rat by eating fleas is an exceptional and aberrant method of transmission of the trypanosome. It is known that rats can acquire infection with trypanosomes by eating other infected material, such as the blood or organs of other rats containing living trypanosomes, and Manteufel has shown that rats can even be infected with *T. lewisi* by allowing blood containing trypanosomes to dry on the unbroken skin. Rats in their fights often kill and eat each other, and doubtless may sometimes acquire an infection as a result of cannibalism of this kind, but no one has suggested that this is a normal method of transmitting trypanosomes. We should not, therefore, have thought it worth while to publish separately the experiments cited above, were it not for Mr. Strickland's second conclusion that we have quoted.

II.

Decisive proof that "the rat's act of eating infective fleas" is not the usual method by which it becomes infected is furnished, in our opinion, by experiments in which, after putting a single flea from the infected breeding-cage on a clean rat for a short time (usually about three days), we have recovered the flea and dissected it, and the rat has become infected in due course; and by other experiments in which we have succeeded in infecting several rats by means of one and the same flea.

For these experiments we used specially constructed rat-cages, each consisting of a tin cylinder, 6 in. in diameter, 10 in. in height; the bottom is closed in with tin, the top by a tightly fitting tin cover, which has an opening sufficiently wide to admit air for the rat, but barred doubly with both wire gauze and finely meshed cloth gauze, the former to prevent the rat forcing its way out, the latter to make it flea-proof. Into such cages were put, first, a small quantity of sawdust at the bottom; secondly, a rat carefully examined to make sure that it had neither trypanosomes in its blood nor fleas on its skin (if necessary chloroformed to rid it of fleas); thirdly, a single flea which had been taken from the infected breeding-cage two or three days previously, and kept isolated before being put on the rat, with the double object of avoiding any possibility of direct transmission of the trypanosomes, and of making the flea hungry. In these cages we never had the slightest difficulty in recovering the flea. Generally, as soon as the rat was lifted up, the flea was seen at once in the sawdust at the bottom; if not there, it was found on the rat, usually on the inner side of the thigh.

In these experiments by no means every flea taken from the infected breeding-cage produced an infection, even though the flea when dissected showed trypanosomes in its digestive tract. We have performed 63 such experiments, which may be divided into two periods: 37 from August 2nd to November 11th, of which 6 gave positive results; 26 from November 12th to December 14th, which were all negative. Of these 26 negative, however, in 6 the flea was left on the rat only for a few hours, and when dissected was not found to contain blood in its stomach and probably had not fed. It is curious, nevertheless, that the experiments in the early winter all had negative results, and this is probably more than a coincidence. In the warmer months the average of positive results is very nearly 1 in 6. In the whole 63 experiments we failed three times to recover the flea, and it may have been eaten by the rat in these cases, but as the result was negative in each case, it makes no difference one way or another. In two experiments the flea was dead when recovered: these also were negative in result.

It will suffice to quote here in tabular form the six experiments that gave positive results:

	Flea put on Rat.	Flea Recovered.	Trypanosomes first Seen in Blood of Rat.	Multiplication Period Ended.	Condition of Flea when Dissected.
1	Aug. 2, '10	Aug. 5, '10	Aug. 11, '10	Aug. 13, '10	Trypanosomes scanty in stomach.
2	Sept. 19, '10	Sept. 22, '10	Sept. 28, '10	Sept 30, '10	Trypanosomes swarming in stomach.
3	Oct. 10, '10	Oct. 14, '10	Oct. 17, '10	Oct. 22, '10	Trypanosomes not found.
4	Oct. 20, '10	Oct. 25, '10	Oct. 28, '10	Oct. 31, '10	As last.
5	Nov. 1, '10	Nov. 4, '10	Nov. 14, '10	Nov. 16, '10	As last.
6	Nov. 11, '10	Nov. 15, '10	Nov. 23, '10	Nov. 25, '10	Trypanosomes swarming in rectum.

With regard to this table it should be remarked, first, that the multiplication of the trypanosome in the rat occupies the first eleven or twelve days after the actual infection has taken place; secondly, that the fleas which produced these infections showed, when dissected, various conditions, from an infection of the digestive tract so scanty that trypanosomes were not found by microscopic examination in the fresh state, to others in which the stomach or rectum were teeming with them.

Flea A.

No. of Rat.	Flea put on.	Result.	Trypanosomes First Seen in Blood.	Multiplication Ended.
265	Feb. 14 to 18, '11	+	Feb. 24, '11	Feb. 27, '11
249	Feb. 24 to March 1, '11	0	—	—
260	March 1 to 6, '11	+	March 15, '11	Rat died March 16, '11
291	March 6 to 13, '11	0	—	—
293	March 13 to 17, '11	0	—	—
295	March 17 to 22, '11	+	March 27, '11	March 31, '11
249	March 23 to 27, '11	0	—	—
291	March 27 to April 1, '11	+	April 5, '11	April 9, '11
293	April 1 to 5, '11	0	—	—
249	April 5 to 10, '11	0	—	—
262	April 10 to 15, '11	0	—	—
296	April 15 to 20, '11	+	April 22, '11	April 25, '11
263	April 20 to 25, '11	+	May 1, '11	May 5, '11
292	April 25 to 29, '11	+	May 1, '11	May 6, '11
293	April 29 to May 4, '11	0	—	—
*294	May 4 to 9, '11	?		
249	May 9 to 15, '11	0	—	—

* Rat died May 9, 1911.

When the flea was searched for on May 15th it could not be found.

Flea B.

No. of Rat.	Flea put on.	Result.	Trypanosomes First Seen in Blood.	Multiplication Ended.
272	Feb. 14 to 18, '11	+	Feb. 24, '11	Feb. 28, '11
259	Feb. 24 to March 1, '11	0	—	—
253	March 1 to 6, '11	0	—	—
292	March 6 to 13, '11	0	—	—
294	March 13 to 17, '11	0	—	—
296	March 17 to 22, '11	0	—	—
259	March 23 to 27, '11	+	March 30, '11	April 4, '11
253	March 27 to April 1, '11	+	April 5, '11	April 7, '11
292	April 1 to 5, '11	0	—	—
294	April 5 to 10, '11	0	—	—

When the flea was searched for on April 10th it could not be found.

Still more striking are the results obtained by feeding a single flea on a number of rats successively. In this experiment we took, on February 14th, 10 fleas from the infected breeding-cage, and put each flea on a separate rat in a flea-proof cage of the kind already described. On February 18th each of the 10 fleas was recovered and put by itself in a test-tube containing a little damp sand, while the rats on which they had been put were examined daily. On February 24th 2 of the 10 rats were found to be infected; the other 8 never showed infection. The 8 fleas which had produced no infection were returned to the infected breeding-cage, but the 2 that had infected their respective rats, henceforth to be known as Flea A and Flea B, were put on a succession of clean rats, with the results shown in the accompanying table.

The experiments show, in the first place, that Flea A infected seven rats and Flea B three rats, consequently that these infections could not have been brought about by the rats eating the flea. Secondly, they show that an infected flea does not infect at every feed, and consequently they throw light on the small percentage of fleas taken from the infected breeding-cage which produce an infection when placed on a rat *only for a short time*. Thirdly, they show incidentally that a flea lives a considerable time. Flea A, a female of uncertain age on February 18th, was to all appearance healthy and vigorous on May 9th, when last seen. Possibly both A and B were eaten finally by the last rats on which they were put; we cannot say.

In conclusion, we venture to assert that the experimental results cited by us support our belief that the infection of rats with *T. lewisi* is not brought about normally through the rat eating the flea; and from other evidence, which we hope to publish in full detail at a future time, we believe that the normal method of transmission is that the ripe, infective form of the trypanosome—the final form of the developmental cycle which it passes through in the flea—is regurgitated from the stomach of the flea into the wound made by the proboscis of the flea during the act of feeding. Considering the problem of the transmission of trypanosomes as a whole, the conclusion that infection is effected by the bite of the invertebrate host receives abundant support from other known cases of trypanosome transmission. No one can suppose that human beings acquire trypanosomiasis by eating tsetse-flies in Africa or bugs in Brazil; and Miss Robertson's recent researches on fish trypanosomes[3] show conclusively that fishes are infected by the bites of leeches. We consider, therefore, that the infection produced by the vertebrate host devouring the invertebrate is an exceptional occurrence without any bearing on the general problem of the transmission of trypanosomes.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, May 6th, 1911, p. 1049. [2] Ibid., March 18th, p. 621. [3] *Phil. Trans.*, B., vol. 202, p. 29.

COMPARATIVE NUTRITIVE VALUE OF WHITE, STANDARD, AND WHOLEMEAL BREAD.

BY

LEONARD HILL, M.B., F.R.S.,

LECTURER ON PHYSIOLOGY, LONDON HOSPITAL MEDICAL COLLEGE,

AND

MARTIN FLACK, M.B.OXON.,

DEMONSTRATOR OF PHYSIOLOGY, LONDON HOSPITAL, MEDICAL COLLEGE.

(*Second Note.*)

DR. CHALMERS WATSON,[1] criticizing our first note,[2] said that we ought to have fed our rats on bread and milk, not on bread and water. Just after reading his letter we passed through a slum in Bethnal Green. The children were out from afternoon school, and had been home for tea. Many were out in the street munching slices of bread. Some of the slices were brown and some white, but all had nothing on them; plain bread and a drink of tea or water was their meal.

The bread question is one that affects particularly the very poor. It matters little to those who can afford milk, meat, bacon, cheese, etc. The point we have to settle is how

the children of the very poor may secure the bread best for growth—for they too often get bread without milk.

It is beside the mark to test the matter by feeding rats on bread *plus* milk. Milk is a food formed for the growth of the young mammal, and contains all the chemical groups necessary for growth. To add white flour to it is to give additional bricks to a body builder.

H. Snyder fed men on bread and milk for four days at a time, and gave us the results of a careful and full metabolic study.[3] His conclusion was that white flour yields more digestible and absorbable protein for the same money than wholemeal. We do not deny that this is so. White bread is suitable enough for those who eat other food which, like milk, contains all the groups necessary for growth and repair.

The wheat berry, just as milk, is a body builder; it, too, contains all the groups necessary for the growth of the sprouting corn. The question of the value of the different parts of the berry cannot be decided merely by estimation of protein and carbohydrate content. Who would separate the casein and lactose from milk and feed our babies on these *plus* water and *minus* the salts and fats? And yet this is comparable to what the miller does to the wheat berry.

The ovum of the wheat grows on the foodstuffs contained in the whole berry. We may be sure there is nothing in it which has not its use in the growth of the sprout.

Of first importance must be the contents of the germ, for in it reside not only the initial elements of growth, but ferments which prepare the contents of the berry for the nutrition of the sprout.

To grind the wheat and take away not only the germ—the very embodiment of growth—but to impoverish the flour in most of the essential organic phosphorus compounds contained in the outer layers, to do this seems a most extraordinary manipulation of the "staff of life."

More extraordinary still is the fact that the State allows this to be done, and does not insist on the miller notifying that the flour is thus impoverished. If such a thing were done to any other article of food, the law surely would step in and hold it to be fraudulent. The question which has to be settled in respect to any flour is this: How far are all the groups necessary for growth present—the ringed amino-acids, phosphorized fats, salts, ferments, or their activators, etc.—bodies the utility of many of which can be detected only by their effect on growth, by biological, and not by chemical tests? In other words, How far is the flour in question a body builder in itself? Our experiments show that white flour is wholly deficient, and we have ascertained that our white flours are unbleached and free from "improvers."

For rats standard flour is very much better, and wholemeal better still. For mice standard is the better so far (one week). We find that wholemeal and water is a diet on which rats can grow, keep in very fair condition, and beget their own kind—the denizens of wheat stacks, mills, and granaries must live almost entirely on wheat. We have a rat bringing up a family quite well, and she herself has grown up and lived for ten weeks, first on standard and then on wholemeal flour and water. The traditional prison diet—bread and water—seems a possible diet so long as wholemeal or standard and not white bread is supplied. The black bread of the old, hard times is better, not worse, for the worker than the white bread of the rich.

The diet of white flour and water hits the younger rats far harder than the older ones. The germ and the bran are needed above all for growth. Two of the youngest rats, as a control, have been fed on white bread and milk, bacon and cheese, and have done much better than those fed on wholemeal and water—a fact which shows that the bread question is of supreme importance only to those who get little else than bread.

In the case of our first set of rats, the 15 fed on white flour, which lost 36 grams in the sixth week, were then put on wholemeal. They gained 31 grams in the seventh and 167 grams in the eighth week.

Drs. Edie and Simpson have obtained results similar to ours on pigeons, and cite others of like nature obtained by Schaumann. Who can doubt, then, that the children of the poor, who are fed mainly on bread, ought to be given what the rat, the pigeon, and the sprouting wheat require for their growth?

The tables we append of our control experiments show the deficiency of white flour conclusively. In this series cannibalism has been prevented almost entirely, and this has made the ill effect of white flour far more evident. The Bread and Food Reform League urge the use of what is termed "standard" bread because of the prejudice against the brown wholemeal bread. In our opinion the State should use all its powers to make standard and wholemeal bread the food of the children of the poor.

White flour will continue to be eaten by the well to do because of its neutral flavour—it sets off the tastes of other foods, and white flour is necessary for the arts of pastry making. White flour robbed of the germ will keep easily, makes a pretty loaf, and saves trouble to miller and baker. But the whole meal is the real "staff of life," and no saving of trouble or liking of a nice-looking loaf should be the pretext for taking away substances essential for the growth of the children.

It is recognized now that the protein content of a flour does by itself not determine the nutritive value, for the proteins do not all yield on digestion the same kind or proportion of amino acids—the building stones out of which the bioplasm of the different organs are built. The "ringed" amino-acids have been shown to be some of the most important. Thus, Dr. Gowland Hopkins found that mice can live longer on zein (a protein obtained from maize) plus tryptophane than on zein alone.

It occurred to us that the superior nutritive properties of standard flour might in part be due to the fact that the valuable amino-acids, such as tryptophane, were split off

TABLE I.
Wholemeal Flour.
Weights of rats in grams.

Rat.	First Week.	Second Week.	Increase.	Third Week.	Increase.	Fourth Week.	Increase.
1	107	116	+9	125	+9	147	+22
2	102	114	+12	123	+9	134	+11
3	101	107	+6	117	+10	131	+14
4	98	106	+8	110	+4	124	+14
5	95	106	+11	107	+1	109	+2
6	87	93	+6	100	+7	109	+9
7	72	75	+3	86	+11	97	+11
8	70	73	+3	77	+4	87	+10
9	68	72	+4	77	+5	87	+10
10	57	60	+3	67	+7	82	+15
11	55	59	+4	66	+7	82	+16
12	51	58	+7	63	+5	79	+16
13	49	56	+7	57	+1	75	+18
14	49	55	+6	57	+2	72	+15
15	47	53	+6	55	+2	65	+10
16	46	53	+6	55	+2	63	+8
17	46	51	+5	54	+3	61	+7
18	45	50	+5	52	+2	57	+5
19	44	48	+4	45	−3	57	+12
20	42	46	+4	44	−2	49	+5
21	42	45	+3	44	−1	48	+4
22	38	40	+2	42	+2	42	+0
23	38	40	+2	39	−1	40	+1
24	37	37	+0	35	−2	39	+4
25	35	32	−3	33	+1	Dead	—
26	27	32	+5	31	−1	32	+1
	1548		+129		+84		+240

Allowing for one death the percentage increase is in four weeks 30.07.

Two control rats fed on white bread and milk, bacon and cheese:

First Week.		Fourth Week.
32	... ...	52
32	... ...	55
64		107

Increase in four weeks 43. Percentage increase in four weeks 67.

TABLE II.

Standard Flour.

Weights of rats in grams.

Rat.	First Week.	Second Week.	Increase	Third Week.	Increase.	Fourth Week.	Increase.
1	108	107	−1	118	+11	118	+0
2	100	101	+1	110	+9	117	+7
3	91	99	+8	104	+5	114	+12
4	95	97	+2	103	+6	104	+1
5	84	89	+5	died	—	—	—
6	74	76	+2	80	+4	87	+7
7	72	67	−5	67	+0	76	+9
8	72	65	−7	68	+3	71	+3
9	63	62	−1	63	+1	67	+4
10	60	59	−1	62	+3	64	+5
11	57	59	+2	63	+4	60	−3
12	51	56	+5	56	+0	61	+5
13	51	53	+2	55	+2	57	+2
14	49	51	+2	53	+2	56	+3
15	48	49	+1	52	+3	56	+4
16	47	48	+1	49	+1	54	+5
17	46	48	+2	48	+0	53	+5
18	45	47	+2	48	+1	52	+4
19	44	46	+2	48	+2	51	+3
20	44	45	+1	47	+2	50	+3
21	42	45	+3	46	+1	50	+4
22	42	43	+1	43	+0	50	+7
23	41	42	+1	42	+0	45	+3
24	36	40	+4	40	+0	45	+5
25	35	37	+2	39	+2	35	−4
26	33	35	+2	38	+3	dead	—
	1530		+36		+65		+94

Eliminating animals 5 and 26, which died, the percentage *increase* in four weeks is 13.02.

TABLE III.

White Flour.

Weights of rats in grams.

Rat.	First Week.	Second Week.	Increase.	Third Week.	Increase.	Fourth Week.	Increase.
1	106	108	+2	105	−3	104	−1
2	104	99	−5	99	+0	103	+4
3	103	99	−4	94	−5	92	−2
4	96	95	−1	dead	—	—	—
5	87	83	−4	83	+0	dead	—
6	82	79	−3	73	−6	68	−5
7	75	67	−8	67	+0	67	+0
8	71	66	−5	66	+0	67	+1
9	65	65	+0	64	−1	61	−3
10	59	61	+2	59	−2	59	+0
11	54	55	+1	57	+2	dead	—
12	53	51	−2	53	+2	52	−1
13	49	49	+0	51	+2	dead	—
14	49	49	+0	50	+1	47	−3
15	48	48	+0	49	+1	dead	—
16	48	48	+0	46	−2	42	−4
17	46	47	+1	45	−2	45	+0
18	46	46	+0	43	−3	43	+0
19	44	45	+1	43	−2	38	−5
20	44	45	+1	43	−2	37	−6
21	43	43	+0	40	−3	dead	—
22	42	43	+1	40	−3	33	−7
23	42	41	−1	40	−1	33	−5
24	40	39	−1	38	−1	dead	—
25	38	38	+0	36	−2	32	−4
26	37	38	+1	35	−3	dead	—
	1561		−24		−33		−41

Eliminating the figures of the 8 animals which died, the percentage *decrease* in four weeks is 8.4.

earlier in the digestion of standard flour than in white flour, and therefore better assimilated and less likely to be lost through bacterial action. To test this the flours were digested with two different pancreatic extracts (P and P[1]), and the amount of tryptophane liberated estimated by (1) the glyoxylic test, (2) the bromine water test. Bacterial action was prevented by the addition of toluol.

In regard to the latter test we found that digestion *in vitro* was slow, and the test was not marked for several days. However, in five positive cases the test was in favour of the standard flour. In regard to the glyoxylic test, this was performed after acidifying with acetic acid, boiling, and filtering. In all cases the depth of colour was greater in the case of standard flour. In a few cases

TABLE IV.

Enzyme.	W.	St.	W.	St.	W.	St.	W.	St.	W.	St.
C.cm. 1.0	A	A+	A	A	A	A+	A	A+	A	A+
0.8	A	A+	A	A+	A	A+	A	A+	A	A+
0.6	A	A+	A	A+	A	A+	A	A+	A	A+
0.4	0	A	A	A+	A	A+	A	A+	A	A+
0.2	0	0	0	A	A	A+	A	A+	A	A+

W. = white; St. = standard flour.

A expresses the depth of glyoxylic test given by white flour.

white flour plus germ and the germ itself were digested in addition. It is worthy of note that the digestion of the germ by itself gave least evidence of liberation of tryptophane, yet when added to the white flour in the proportion of 5 per cent. it increased the colour depth of the test as compared with that for white flour alone. This points to the presence of adjuvant bodies in the germ. Not only is the tryptophane-containing portion of the proteins split off in larger amount, but also more easily in the case of standard flour, as the table shows. Here an equal amount of flour suspension (2 c.cm.) was digested with 1.0 c.cm., 0.8 c.cm., 0.6 c.cm., 0.4 c.cm., 0.2 c.cm. respectively of the pancreatic juice.

It has been asserted that the decay of teeth in modern times is due to the fact that a greater acidity is developed in the mouth on chewing white bread than on chewing the old-fashioned household bread. We do not find this to be the case.

To test the amount of acidity developed while chewing in the mouth, 5 grams of bread (standard or white) were taken, and, after preliminary washing out of the mouth with distilled water, were chewed for two minutes. At the end of this time the bread was ejected into a beaker containing 10 c.cm. of distilled water, and thoroughly shaken for one minute. The titration was then made with $\frac{N}{10}$ NaHO. From the figures (Table V) it will be seen that there is little difference in the results obtained with the two breads. It is interesting to note that with two students working together (for example, A. and L.) the results would sometimes be exactly opposite.

After ejection the acidity continues to increase, and therefore a small margin of error must be allowed for the time of titration. In carefully conducted experiments with $\frac{N}{100}$ NaHO, M. F., working to time as near as possible, found that there was no difference in the two breads in his case.

In the table the letters denote the order in which the chewings were made. Both breads were slightly acid to begin with, to an equal extent. The acid developed is,

in part at any rate, lactic acid. Neither bread gave Uffelmann's or Hopkins's tests previous to the chewing. Both gave these tests markedly afterwards.

TABLE V.

Table showing Amount in C.cm. of N/10 NaHO required to Neutralize 5 Grams of Bread of well-known London Make after Chewing for Two Minutes.

Name.	Standard.	White.	White.	Standard	Order of Chewing.
B.	1.7	1.3	0.8	1 0	S. W. W. S.
H.	1.3	1.5	1.4	1.5	,,
F.	0.8	0.9	1.2	1.0	,,
M.	1.1	0.9	—	—	,,
X.	1.5	1.8	1.9	1.3	,,
A.	2.0	1.5	1.5	2 2	W. S. S. W.
Ja.	1.2	1.4	1.6	1.3	S. W. W. S.
Ba.	2.2	1.8	1.3	1.9	W. S. S. W.
Bo.	1.7	1.3	1 5	1.9	S. W. W. S.
L.	1 6	1.4	—	—	S. W.
C.	0.8	0.5	1.1	1.6	S. W. W. S.
P.	2.1	2.3	3.0	2.8	W. S. S. W.
S.	1.6	2.0	1.2	1.4	S. W. W. S.
Y.	1.5	1.9	1.1	1.0	W. S. S. W.
W.	1.8	1.4	1 3	1.8	,,
V.	1.7	1.4	—	—	W. S.
Pr.	1.5	1.0	1.0	1 7	S. W. W. S.
M. F.	1.0	1 0	1.1	1.1	,,

We draw attention to the fact that Reid Hunt[4] has found mice more susceptible to poisoning by acetonitrile when fed on biscuit powder and water than when fed on oatmeal and water.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, May 13th. [2] Ibid., May 6th. [3] United States Department of Agriculture Bulletin 156. [4] Treasury Department, U.S.A., Hygiene Bulletin No. 69, 1910.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE USE OF *X* RAYS AND THE ADMINISTRATION OF METALLIC SILVER IN THE TREATMENT OF CERTAIN DISEASES OF THE ALIMENTARY TRACT.

(Preliminary Note.)

THE undoubted effect which *x* rays have in stimulating the healing of chronic ulcers on the external surface of the body led me, some years ago, to employ them in the treatment of presumed ulceration of the alimentary tract. I used a hard tube with an aluminium filter, and irradiated the skin area over the supposed site of the lesion. Benefit seemed to accrue in some cases, but I was only too conscious of the weak points of the method. The rays used were of a kind not commonly believed to possess any great therapeutic activity, and it is probable that only a small fraction of the total dose was absorbed by the diseased surface. I had had one or two complete failures, and was beginning to lose interest in the subject, when the publication of Sir J. J. Thomson's address describing Professor Barkla's experiments on secondary radiation[1] caused me to take up the matter afresh. The central fact which struck me was that silver emitted a radiation similar in its properties to the beta rays of radium. I obtained some of the metal in a chemically pure precipitated form, and administered it to myself in doses of 30 grains t.d.s. for a fortnight. As no evil results occurred, I concluded that it might be taken with safety. My idea was this: That the irradiation of a hollow viscus containing metallic silver would result in a "reflection" of soft secondary rays; and that, provided the primary stream were directed successively at various angles to the part affected, a number of these must of necessity "strike back" at any diseased area in the walls of the organ.

I have made use of this principle now for a period of six months with considerable success, at least temporary. My cases include ulceration of the caecum, gastric ulcer, and doubtful malignant obstruction of the pylorus. It is, of course, much too early to speak of ultimate results, but I may at least claim for my method that it is a reasonable attempt to make practical use of the newly-discovered facts enunciated in the address referred to.

FRANCIS HERNAMAN-JOHNSON, M.D.ABERD., Ch.B., R.N. (ret.),
Radiographer to the Bishop Auckland District Hospital, Durham; late Surgeon, Royal Naval Hospital, Plymouth.

[1] BRITISH MEDICAL JOURNAL, August 27th, 1910.

AN OVERDOSE OF PHENACETIN.

A GENTLEMAN of vigorous physique was ordered a cachet containing 9 grains of phenacetin and 1 of caffein during influenzal pyrexia. He took in error eight cachets within the space of one hour, containing 72 grains of phenacetin.

One hour after taking the phenacetin he felt nauseated and much depressed; the headache had gone, and he complained of giddiness. On rising from his bed he could scarcely stand, and had to be helped back. There was profuse perspiration. He vomited after a cup of tea, but no trace of the phenacetin was observed in the vomit.

Two hours after the phenacetin had been taken the temperature was subnormal, surface cold, countenance ashy-grey and drawn. There was marked cyanosis, the breathing was slow and laboured, the pulse irregular, slow, and weak. The patient complained of feeling very weak and of nausea. I gave him 2 oz. of whisky, which he was able to swallow without vomiting, and a hypodermic injection of $\frac{1}{20}$ grain of strychnine. Oxygen was administered freely, with marked effect upon the cyanosis and respirations.

The urgent symptoms passed within three hours. The next day the patient felt depressed, and cyanosis was still in evidence; on the following day he had completely recovered.

Rome. A. G. WELSFORD, M.D., F.R.C.S.

LIVING CHILD AND DEAD FETUS.

THE following case may prove of interest alongside the one recorded in the BRITISH MEDICAL JOURNAL of February 4th, p. 252: On July 14th, 1900, I attended Mrs. C., 7-para; she informed me that she did not expect her confinement for fully a month, that she had not been in good health for about two or three months, that she felt "queer," being easily tired, unable for her work, very restless and sleepless at nights, and that she had not had similar feelings in her previous pregnancies. She had been in town in the afternoon for two hours and returned so exhausted that she went to bed. An hour later labour commenced. She gave no history of abortion or miscarriage. She was seen about five hours after labour began, the pains being fairly strong; the os uteri was found to be almost fully dilated. There was no protrusion of the membranes during the pains, nor did they get much tenser, but they felt thickened, and lying within them a number of small loose bones were made out. As the patient felt tired an anaesthetic was given, when it was clearly made out to be a dead fetus. The thickened membranes were ruptured and fully 6 oz. of a dark, non-offensive fluid, resembling thickened brown soup, came away. The dead fetus was easily removed. Enclosed in a separate sac, lying well up in the uterus, was a living child; the membranes were ruptured, a foot seized, and delivery was easily effected. There was one placenta of large size, which appeared quite healthy, but two sacs of membranes.

The dead fetus was slightly macerated; it was 4 to 5 in. long, the skull bones lying loose inside the scalp. The epidermis was gone, the cutis of a dark red colour, the umbilical cord shrivelled. The fetus had the appearance of having died about the fifth month of pregnancy.

The living child was a female of small size, fully formed, but evidently three to four weeks premature, judging by the finger-nails. Artificial respiration was required for a few minutes after delivery. On the following day there was lividity of both legs, more pronounced in the left, which disappeared in a week. The child remained rather

weakly for about ten days. The mother made an excellent recovery.

The family removed from the district at the end of 1900, but returned five years later (1905), when the mother consulted me with regard to the child. She informed me that it had never been of robust health, but had not suffered from any serious illness; it was likewise very irritable; it was 3 years old before walking, and then with difficulty. The child was well nourished. The gait was very unsteady, there being a spastic condition of the legs, but no wasting of muscles; no impairment of sensations; the knee-jerks were increased, ankle clonus was absent; there was great difficulty in turning round and in balancing. The condition was evidently one of cerebral diplegia.

The interest attaching to this case is the presence of a living child and dead fetus. Arising from this it may be asked: (1) If the presence of the dead fetus caused the impairment of the mother's health complained of? (2) If the presence of the dead fetus caused labour to take place before full term? (3) If the presence of the dead fetus in any manner affected the after-history of the live child?

Cults, Aberdeen. ROBERT BRUCE, M.A., M.D.

EXCISION OF SCAPULA IN ADVERSE CIRCUMSTANCES.

I DESIRE to report this case to exemplify the endurance of Persian patients and the success which attends operations done under the most adverse conditions.

In July, 1910, a Bokhari girl aged 8 years was brought to me with the following history: Four weeks before she had fallen from the roof and sustained some injury, probably fracture in the region of the elbow-joint. A native hakim put the arm in splints, and in spite of the incessant cries of the child they were not taken off for about a fortnight, till one morning the whole arm from the shoulder-joint dropped off.

When brought to me the child was in a very weak and exhausted condition. The whole of the left arm was missing; the necrosed and blackened coracoid process could be seen in the midst of a mass of purulent and gangrenous exudation. After using antiseptic dressings and stimulants for two days, I anaesthetized the child (chloroform) and removed the scapula. The body of the bone was unaffected except for the lower angle, which was necrosed. I was rather doubtful as to whether the acromial end of the clavicle was affected or not, but as I was entirely single-handed, both as to giving the anaesthetic and performing the operation, I did not remove any part of it. The large cavity left was packed with iodoform gauze, and gradually granulated up, and new skin formed. It was dressed daily for about a month.

Six days after the operation I had to shift my camp twenty-five miles, and the patient accompanied the caravan, riding on a donkey.

E. N. MACBEAN ROSS, M.B., Ch.B.Glas., L.M.Rotunda.

Charmahal, Persia.

POISONING AFTER SMALL DOSES OF ASPIRIN.

DR. CONWY MORGAN'S interesting case of aspirin idiosyncrasy, recorded in the JOURNAL of February 11th, p. 307, recalls to my mind a similar unpleasant experience which happened to myself early in November, 1909.

Some rheumatic pains in the right shoulder had been inconveniencing me in the use of the right arm, and a medical friend strongly advised me to try aspirin. This I did, taking in all 15 grains, over a period of between four and five hours, in three doses of 5 grains each. About 8 p.m., and within twenty minutes of taking the third dose, marked oedema of the eyelids, forehead, and cheeks suddenly developed, and in a few minutes the swelling was so great that my eyeglasses would not remain on my nose, and I was unable to see unless I separated the puffy eyelids with my fingers. There were no symptoms other than the mechanical discomfort from the swelling. My throat was not affected in any way. The oedema was much less next morning, but it did not entirely disappear until the end of the third day. I felt perfectly well in every respect, and the rheumatic pains disappeared within twenty-four hours of taking the drug.

Strange to say, next day a lady patient told me that she was similarly affected by aspirin, and that 5 grains were sufficient to cause puffiness of her eyelids.

London, W. PETER H. ABERCROMBIE.

Reports ON MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

ROYAL NAVAL HOSPITAL, PLYMOUTH.

A CASE OF FRACTURE OF THE SPINE DUE TO MUSCULAR ACTION.

(By VIDAL G. THORPE, M.R.C.S., L.S.A., Fleet Surgeon, R.N.)

IN the BRITISH MEDICAL JOURNAL of October 15th, 1910, are reported two cases of fracture of the transverse processes of the vertebrae due to muscular violence. Apparently, this accident is more common than is generally supposed, and may possibly account for some obscure instances of so-called chronic lumbago following injuries. Lange[1] published two cases, both detected during life by skiagraphy; and he gives a short epitome of the literature of the subject, the injury previously having been noted eight times during life and three times *post mortem*.

Fracture of the lamina by muscular action is a much rarer injury; indeed, Rose and Carless (sixth edition) state that, though this accident is not uncommon, it always results from direct violence. The following case, however, seems to be a striking exception to this rule.

A splendidly developed bluejacket, aged 26, was playing in a Rugby football match near Plymouth on September 11th, 1909. The ball was passed out of a scrum, and was seized by this man, who was playing at stand-off half, and he started to run towards the opposing side's goal. At the same moment he was tackled by an opponent around the hips, and held firmly. The seaman threw the ball to a comrade who was slightly behind him, and, in doing so, gave the upper part of his body a sudden sharp twist towards the left, and immediately fell to the ground with a cry, his opponent falling with him.

State on Admission.—An hour and a half after the accident he was admitted into the Royal Naval Hospital, Plymouth, and was then found to be completely paralysed, both as regards motion and sensation, below the nipple line, the symptoms pointing to an injury at the level of the third or fourth dorsal vertebra. He was perfectly conscious, and able to give a clear account of the accident. Marked priapism was present, and incontinence of faeces. The patellar reflex was lost; the lower limbs were warm, and there was little or no shock.

Operation.—Laminectomy was performed the same evening, after a consultation of the surgical staff of the hospital. The spinous process of the third dorsal vertebra was found to be mobile, and examination showed that the left lamina had been fractured at its junction with the transverse process. The spinous process was nipped through with cutting pliers, and a small trephine applied to its base, the fractured bone, as well as one or two loose sharp spicules, being then removed. No injury to the cord could be detected, and the first effect of the operation was the disappearance of the priapism. The muscles were united with catgut, and the skin with silkworm gut without drainage.

Result.—The patient appeared to be doing well till the afternoon of the following day (12th), though there was no return of sensation or movement in the paralysed parts. Then the gravest symptoms supervened, the paralysis extending upwards, with loss of power in the arms; very embarrassed breathing, and difficulty in swallowing; the pulse became small and rapid, and the patient drowsy. The temperature rose to 105.4°, and death took place at 11 p.m., about thirty-two hours after the accident.

Autopsy.—The *post-mortem* examination showed the operation wound to be perfectly healthy. Besides the signs of fracture already discovered, extradural haemorrhage was found opposite the fifth dosal vertebra, but the spinal cord itself was not crushed. The lungs were engorged and oedematous, and the left lung bound down to the chest wall by old pleuritic adhesions. The remaining organs of the body were healthy.

I think there can be no doubt that this fracture was caused by the action of the muscles of the spine, particularly the multifidus spinae and rotatores dorsi. These would be highly developed in a splendid specimen of manhood such as this bluejacket, accustomed to boatwork and pulling an oar; and when the origin and insertion of these muscles are taken into consideration, it is conceivable that their leverage would be increased if, as in this case, the lower part of the body be held as in a vice, and they were suddenly put into action, and that a fracture would be the possible result.

The details as to how the accident occurred were confirmed by several players in the game, who gave their evidence at the subsequent coroner's inquest, when a verdict of accidental death was returned.

[1] *Medical Review*, January, 1910, p. 44.

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

Monday, May 15th, 1911.

Mr. CHARTERS J. SYMONDS, President, in the Chair.

Post-operative Lung Complications.

DR W. PASTEUR devoted the Annual Oration to a consideration of the lung complications after operation. Not long ago these were held to be, for the most part, a direct result of the anaesthetic, but that view was no longer tenable. Ether, *per se*, was probably not a direct cause of pulmonary inflammation, but respiratory difficulties during anaesthesia—whether due to faulty administration, unsuitable method, surgical manipulations, or the quality of the anaesthetic itself—favoured the aspiration of saliva, into the lungs. In that way the anaesthetic might become an important contributing cause of lung troubles. These occurred with especial frequency after operations above the umbilicus, and though frequently associated with clean wounds, were more likely to arise in septic cases. They usually developed within two days after operation, and were relatively uncommon after the fourth day. Complications arising after the first week were generally associated with septic processes. Most of the deaths occurred in septic cases. The facts did not support the opinion that after-effects more frequently followed ether than chloroform anaesthesia. A few years ago it had occurred to the speaker that massive collapse from reflex inhibition of the diaphragm might account for some of the perplexing lung conditions occasionally met with after abdominal section. The conclusive sign of such collapse was displacement of the heart's apex beat towards the affected side, and it was the only sign peculiar to the condition. It was always present when collapse was unilateral and sufficient in degree, but was probably absent in the rare cases in which both lower lobes were involved simultaneously. They had no means of estimating the amount of deflation which took place in a given case. It probably varied with the degree and duration of inhibition of the diaphragm, and the term "massive collapse" was only applicable to cases in which it gave rise to definite physical signs. Probably the amount of displacement of the apex beat was a rough index of the amount of deflation. In uncomplicated cases the symptoms tended to subside rapidly. The initial dyspnoea rarely lasted more than a few hours, and by the end of the first twenty-four hours all urgent symptoms had usually cleared up. The displaced heart had already begun to move back towards its normal position, though that might not be fully regained for several days. It must be borne in mind, however, that collapsed lung was very liable to become inflamed, and where infective material was at hand the clinical picture of massive collapse might insensibly become replaced by that of bronchopneumonia. The early occurrence of viscid expectoration in most cases deserved notice. The sputum at first probably consisted of the contents of the collapsing lobe which were pressed back into the large bronchi and coughed up. But if expectoration continued for more than twenty-four hours it probably indicated the supervention of bronchitis or bronchopneumonia in the re-expanding lobe or in some other part of the lungs. Pain was also a very common early symptom. It was apparently not of the same kind as pain of pleural origin, being, as a rule, more deep-seated and less acute in character. The great variation in the mode of onset was one of the most interesting features of massive collapse. In one patient it stimulated pulmonary embolism, in another it gave rise to no symptoms at all. The difference could not be explained by the degree of collapse, for in both cases the physical signs indicated a profound alteration in the condition of the lung. It was more likely to be dependent on the rate at which collapse took place, and on the ability of the heart and the sound lung to adapt themselves easily to the altered condition of respiration and circulation. He had endeavoured to prove that deflation of the pulmonary bases, resulting from reflex inhibition of diaphragmatic movement, was an essential, if not the chief, factor in the causation of post-operative complications, and that the rôle of the anaesthetic was only a very secondary one.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Friday, May 12th, 1911.

Sir A. PEARCE GOULD, President, in the Chair.

Suppression of Urine.

DR. WILFRED HARRIS and Mr. W. H. CLAYTON GREENE, in a paper on the treatment of acute suppression of urine by incision of the kidneys, described four cases in point. After a lateral incision in the loin and exposure of the kidney, a cut was made through the convex border of the kidney substance deep into its pelvis, the cut being about an inch in length. After controlling the free haemorrhage by plugging, a drainage tube was fastened in the pelvis. The result in each case was almost immediate resumption of the secretion of urine, which was passed both by the drainage tube and also by the bladder. In some cases it appeared that operation upon one kidney might be sufficient. In Case IV, one of corrosive sublimate poisoning, both kidneys were incised, the right kidney on the third day and the left on the fifth day after suppression commenced, or on the fourth and sixth days after the swallowing of the poison. The ultimate result was practical cure of the haemorrhagic nephritis, between 30 and 40 oz. of urine being passed daily. Death, however, took place in this case on the sixteenth day from exhaustion due to the severe colitis resulting from the excretion of the drug by the large bowel.

Exhibits.

The following were among the exhibits:—Dr. WILFRED HARRIS: Case of *Spondylitis, with progressive muscular contracture.* Mr. EDRED M. CORNER: Case of *Trophic ulceration* over a large formation of scar tissue. Dr. W. ESSEX WYNTER: A case of *Graves's disease* in a boy, which had commenced at the age of 10. Dr. H. D. ROLLESTON: A case of *Recurrent attacks of post typhoidal osteitis.* Mr. FRANCIS S. KIDD: A case of *Congenital deformity of femur*, the upper femoral epiphysis and half the shaft being absent. Mr. CECIL ROWNTREE: A case of *Carcinomatous degeneration* in a chronic dermatosis.

OXFORD MEDICAL SOCIETY.

AT a meeting at Littlemore Asylum on May 12th, Mr. DODDS PARKER in the chair, Dr. RAY, in an account of *Hydatid disease*, said the difficulties of diagnosis arose chiefly when the cyst lay in the right hypochondrium. In this region Fowler's sign—accumulation of fluid with pleural friction—was most valuable. The *x* rays were also helpful. A strip of more transparent tissue between cyst and diaphragm often settled the diagnosis. The precipitin test promised to be very valuable, and to be equally good in sterile, fertile, or suppurating cysts. Eosinophilia was only a supporting fact. When the cyst lay in the right hypochondrium, the guiding line in operation should be the upper edge of the liver. If this were raised, the cyst should be attacked from the chest; if not, from the abdomen. The position of the lower edge of the liver should be ignored. The best results were seen when the cyst was emptied, filled with normal saline, and again sewn up. No necrosis occurred; the fluid was gradually absorbed, and the cyst gradually lessened. Suppurating cysts could only be treated by drainage. Dr. GOOD, in an account of *Dementia praecox*, described it as a disease affecting primarily the will and the judgement. The persons affected were between the ages of 13 and 25, and there was almost always a hereditary weakness from insanity or alcohol. The immediate causes were over-pressure at work, or cramming at school. Injury to the head and tuberculosis were often associated with the disease. Treatment, when the disease was established, led to no permanent good. Even if apparent recovery occurred the patient relapsed. Mentally unstable children, children who were often bright at school to an unusual degree, should not be unduly pressed; any form of cramming in such children was certain to bring disaster. Dr. READ then read the notes relating to two patients who had already been shown to the society. One, who was demonstrated, was a *Cretin*, aged 19, who had been treated for a year by thyroid extract. She was very much improved, had grown 2 in. in height, and had put on 8 lb. in weight. Her health was good and she was able and willing to do a

fair amount of work in the ward. Owing to her being deaf and dumb, much mental improvement was hardly to be expected. The second patient had died in the asylum. His condition on entry had been one of locomotor ataxia with optic atrophy; his mental symptoms, which were not marked at first, had become definitely those of general paralysis. The condition of his spinal cord and brain had confirmed the diagnosis that this was a case of *Mixed general paralysis and locomotor ataxia.*

UNITED SERVICES MEDICAL SOCIETY.

AT a meeting on May 10th the following papers were read:—Fleet Surgeon J. H. WHELAN, R.N. (ret.), in a paper on the *Action of quinine on malarial fever*, maintained that quinine acted by destroying the malarial-affected red blood cells, caused them to break up, and so led to the death of the young parasites in the blood stream before they had time to sporulate—snapped the cycle of Golgi. He thought that the temperature charts, which he showed, bore out his contention that the action of quinine was to free toxin and cause a rise of temperature shortly after its administration. Some experiments with malarial blood outside the body showed that quinine in the strength of 1 in 20,000 was able to liberate the parasites in fair numbers, and as the quinine content could be raised equally high in the body, he considered the same thing took place there. Major R. S. HARRISON, R.A.M.C., said that the action of quinine as a poison of the malarial parasite inside the red blood cell could be demonstrated easily, but one did not find extracorpuscular parasites in the blood of patients taking quinine, and he explained the temperature charts in another way. Fleet Surgeon W. A. WHITELEGGE, R.N., in a paper on *Eye-strain in the Royal Navy*, considered eye-strain (not due to errors of refraction) under the headings of ciliary strain, muscular strain, retinal strain. In two years 4,819 cases were examined, and he had found eighteen instances of accommodative and 15 cases of muscle balance error, of a more or less degree, in which the symptoms had persisted, and which were caused by the strain of using high-power telescopes, binoculars, and range finders, but especially the latter, where the magnification was very great, and the lenses on the two sides were of different power. In these circumstances a very great strain was thrown on the eyes, and minor discomforts were extremely common. Many other causes of eye-strain were mentioned and the symptoms given. In the discussion which followed, Fleet Surgeon GASKELL expressed the opinion that a tendency to squint was a very fertile source of eye-strain, and that squints of a minor degree were commoner than most people supposed. People were too apt to try and cure this condition by means of glasses—in fact, he considered that many people wore glasses unnecessarily.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

AT the concluding meeting of the session on May 5th, Dr. A. CHRISTY WILSON, President, in the chair, the following were among the exhibits: Dr. E. F. TREVELYAN: (1) A man, aged 26, with *Muscular atrophy* limited to the shoulder girdle muscles of seven years' duration. All movements at the shoulder were possible but weakened. There was marked fibrillary twitching and no pseudo-hypertrophy. The patient was practically in the same state as when seen five years ago. (2) A girl, aged 3 years, who had sustained an injury eighteen months previously, from which time the loss of power was dated. There was paralysis and wasting of most of the muscles of the shoulder girdle, but external rotation was still possible. There was dropping of the head of the humerus. The diagnosis lay between injury to the joint and brachial plexus, and an independent infantile paralysis of the upper arm type. Dr. T. CHURTON: A case of *Haemorrhage in the brain*, illustrating the value of differential temperatures in diagnosis. Dr. C. OLDFIELD: A case of *Intestinal obstruction* due to strangulation by a band connected with a degenerated fibroid tumour of the uterus. Mr. A. GOUGH: *Vincent's organisms* from a case of pyorrhoea alveolaris, and from a case of pseudo-membranous tonsillitis. Mr. J. F. DOBSON: A *Meckel's diverticulum* opening at the umbilicus. Enterectomy had been performed. Dr. W. H. MAXWELL TELLING: (1) A *Foreign body from the vagina* of a child of 7; it was a button, which had lain therein for three months. At the commencement of this period there had been a sanguineous discharge, which was taken by the mother for a period. (2) A case of *Anaemia splenica infantum* in a child of eleven months. The child was a Jew and a twin, and showed marked signs of rickets.

NORTH OF ENGLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY.

AT a meeting at Leeds on May 19th, Dr. J. B. HELLIER, President, in the chair, the following were among the exhibits: Dr. DONALD (Manchester): A specimen of *Adenoma of the uterus*, showing how curettage for menorrhagia may fail. Dr. FITZGERALD (Manchester): Sections of a *Myxosarcoma* from a patient aged 48. When first seen she had no objectionable symptoms beyond some pain in the left iliac region. Six weeks later the abdomen was found to be acutely distended, the pulse 130, her temperature 100.2°, and she was suffering severe pain. The abdominal cavity when opened was found filled in every possible direction with a semisolid mass, which on microscopical examination proved to be a myxosarcoma. Half a bucketful of the mass was removed, and efforts were then made to discover whence the growth had taken origin. The pelvic organs were found to be normal, as were all the organs in the abdominal cavity, though all were coated over by the growth. The blood supply to the growth was extraordinarily scanty. In ten days the abdomen was as much distended as it had been before the operation, and four weeks after, when the patient died, the distension was even more marked. Dr. OLDFIELD (Leeds): A *Parasitic fibroid* removed from an unmarried woman, aged 35. It formed an abdominal tumour about the size of an eight months pregnancy, but with the exception of a little pain produced no symptoms. The omentum spread over it was thin, contained no fat, but numerous large vessels, the lymphatics being distended to the size of one's little finger. In view of its rapid growth it was removed, together with the uterus and appendages and a large portion of omentum. Dr. LLOYD ROBERTS (Manchester): A uterus weighing only 1½ oz., but affected with *Carcinoma of the cervix*. It was removed by vaginal hysterectomy from a patient aged 52. The exhibitor discussed the different methods of hysterectomy, and considered that the vaginal route still held the field, and that it afforded at least as good a chance of immunity from return as the more severe operation of abdominal section. Dr. STEWART (Leeds) described a case of *Carcinomatous ovarian teratoma*. The patient was first admitted to the Leeds Infirmary in March, 1908, when vaginal hysterectomy for cervical carcinoma was performed. In November, 1910, she returned with a large tumour of the left ovary. This proved to be a teratomatous cyst, the greater part of which consisted of squamous epithelioma, probably secondary to the old cervical cancer. In addition, a great variety of teratomatous structures were found, including representatives of all three fetal layers, squamous epithelium, hair, glandular structures, nervous tissue with ventricular spaces and particles of brain sand, fibrous and adipose tissue, unstriped muscle, bowel wall, and thyroid gland. The patient had general peritonitis at the time of operation, and died soon after. No other evidence of metastatic deposit was found *post mortem*. An inference drawn from the case was that hysterectomy for uterine carcinoma should always be accompanied by removal of the appendages. Dr. CLARA EGLINGTON described a series of 12 malignant and apparently malignant tumours of the ovary and broad ligament, removed in the Leeds General Infirmary during the past twelve months and examined in the pathological laboratory. Ten proved to be malignant, and 2, which appeared macroscopically malignant, were histologically benign. The conclusions drawn from the series were: (1) That in papillary and malignant ovarian tumours, if the second ovary shows no macroscopical evidence of disease, microscopically there is frequently some change. (2) That primary and secondary malignant disease of the ovary seldom occurs in organs not already the seat of an adenomatous change.

Reviews.

CEREBRO-SPINAL MENINGITIS.

PROFESSOR BUSSE, in a recent monograph on cerebro-spinal fever,[1] devotes special attention to the pathological aspect, basing his observations upon a series of 58 *post mortem* examinations illustrated by some excellent coloured plates. He gives, however, rather a general survey of the subject than a detailed and statistical description of individual examinations. There are several points upon which more stress is laid than is usual. He has never found foci of suppuration and encephalitis or myelitis in cases of true cerebro-spinal meningitis, and suggests that in describing these the textbooks are merely copying from old accounts written before the bacteriological diagnosis was firmly established. He also describes a layer of cells which he has found on the surface of the cerebellum in the more chronic cases, and suggests that they represent regeneration. The changes in the ventricles and choroid plexus are very minutely described. No new evidence is adduced as to the mechanism of the production of hydrocephalus. It has often been assumed that the primary lesion is situated in the naso-pharynx, but Professor Busse draws attention to the great frequency with which bronchitis and laryngitis are found in early cases, and holds that any part of the respiratory tract may serve as the port of entry of the meningococcus. He does not think that either the presence of adenoid vegetations or the status lymphaticus play any part in inducing a predisposition. Probably the most interesting part of the book is the discussion of the carrier problem. It is claimed that in every epidemic for every sufferer from the disease there are ten to twenty individuals who harbour the infectious organism in their nose and throat. They may have some slight coryza or sore throat, but in many cases are apparently quite normal. They are not immune, for some of them have developed the disease. In one epidemic it was found that over 50 per cent. of the fathers of the patients were infected carriers. The meningococcus is very soon killed by drying, and must therefore be conveyed from person to person by immediate contact or by the spray produced in sneezing, coughing, and talking. Kissing he looks upon as one of the most dangerous means of infection. The factors which predispose an infected individual to an attack of meningitis are unknown, but he thinks it probable that the predominance of children is merely another example of the liability of a local infection to become general in the case of the child. All attempts to free the carriers from the organism have failed, and their number is so large that it is impossible to isolate them. The German authorities have issued a leaflet to the public explaining the danger and suggesting means of minimizing the risk. The author does not refer to the criticism which this theory has received, namely, that it is almost impossible to recognize the meningococcus amongst other common denizens of the nose by smear preparations alone, whilst most of the investigators seem to have relied upon simple microscopical examination. The theory explains so many of the puzzling features of the epidemiology of the disease that further work is urgently required. As regards serum treatment, great importance is placed upon giving large doses by the intradural method. The book gives a good exposition of the prevailing German views upon this important disease.

NEUROLOGY.

PROFESSOR OPPENHEIM'S great textbook of nervous diseases first appeared in 1894, and its fifth German edition came out in the summer of 1908. This has been translated into English by Dr. ALEXANDER BRUCE,[2] and is issued in the form of two handsome and weighty volumes. The first of these begins with a general introduction to neurology, some ninety pages being given to the modes of examination employed and the general symptomatology of nervous disorders. Then follows the special part of the work, divided into six sections, of which the first two occupy the rest of the first volume. The first section deals with diseases of the spinal cord, systemic and diffuse; the second with affections of the peripheral nerves, the various forms of peripheral paralysis that can be differentiated into distinct types for practical as well as for textbook purposes. In considering the diagnosis of sciatica Professor Oppenheim has an interesting discussion on the rare affection known as intermittent claudication, laying stress on the importance of the neuropathic diathesis in its etiology; he recognizes a benign form of it, due to spastic vascular conditions, and not to an organic disease of the wall of the vessel. In the second volume diseases of the brain occupy 450 pages, the first 65 being given to the anatomy and physiology of the brain, the next 70 to the general symptomatology of its diseases. The next section is devoted to the neuroses, using the term in its widest sense; and the last 90 pages are given to diseases of the sympathetic, angio-neuroses and trophoneuroses, alcoholism, morphinomania, and tetanus. The sterling qualities that have made Professor Oppenheim's textbook one of the best known of all the works on the subject of nervous disorders are manifest on every page of these two volumes. He has a most extensive and thorough knowledge of the subject at first hand, and so is able to speak with the authority of experience; and, a matter of no less importance, he succeeds in keeping pace with the vast literature of neurology. One of the most valuable features of his book is the great number of references to the literature it contains—so much so, that one is tempted to exclaim, "English authors, please copy," and to congratulate the translator on having included them in his two volumes. The translation has been well done, although many sentences have been placed within brackets where a pair of commas might advantageously have been used in their place. In many instances the translator has joined together by a hyphen the names of the two authors of jointly written papers, after the German fashion, instead of giving the two names separately with the word "and" between, as is usual in English; thus a paper by "Oppenheim and Sonnenburg" is quoted as by "Oppenheim-Sonnenburg." There are not many misprints, though a single line on p. 1192 contains two ("blutylchloral," "vannadium"), and also the untranslated German word "Bromlithium," that should read "lithium bromide" in English. The first volume would undoubtedly have gained in utility had the 25-page index been included in it as well as in the second volume. The illustrations are excellent; and the book, indispensable to the neurologist, can be most warmly recommended to all medical men in search of a lucid, complete, and authoritative textbook of nervous diseases.

The first edition of Dr. R. T. WILLIAMSON'S excellent monograph on the *Diseases of the Spinal Cord*[3] was favourably reviewed in the JOURNAL of May 8th, 1909, p. 1125. We are glad to take an early opportunity of noticing the second impression. Dr. Williamson has designed his work to be a textbook rather than an exhaustive account of the subject; accordingly, references to the literature are given only in the case of the more recent and important papers, and no complete bibliography has been attempted. The first 116 pages deal with the structure and functions of the cord, the symptoms of spinal disease, the examination of the patient, and the diagnosis and localization of the lesions present. With this introduction over, Dr. Williamson introduces his clinical division of spinal cases into four groups according as the prominent symptoms are those of (1) a transverse lesion, (2) atrophic paralysis, (3) spastic paresis or paralysis, or (4) ataxia. These four groups are next considered seriatim; at the end of the book are sections on spinal meningitis, spinal syphilis, and trauma of the spinal cord. There are two appendices: one on the methods of staining sections of the cord, the other, dated 1910, gives an account of the advances made in the knowledge of spinal diseases since 1908. The book is a thorough and painstaking piece of work, well arranged and well written. It is perhaps strongest on the side of pathological anatomy, being abundantly furnished with pictures and

[1] *Die übertragbare Genickstarre.* By Professor Otto Busse. Jena: Gustav Fischer. 1910. (Royal 8vo, pp. 180; 7 plates, 10 figures. M.12.)

[2] *Textbook of Nervous Diseases for Physicians and Students.* By Professor H. Oppenheim. Fifth Edition, with 432 illustrations and 8 plates. Authorized translation by Alexander Bruce, M.D. In two vols. Edinburgh: Otto Schulze and Co. 1911. (Sup. roy. 8vo, vol. i, pp. xvii + 606; vol. ii, pp. 606 + 1424; 432 illustrations; price £2 2s.)

[3] *Diseases of the Spinal Cord.* By R. T. Williamson. Second Impression. The Oxford Medical Publications. 1911. London: H. Frowde, and Hodder and Stoughton. (Sup. roy. 8vo, pp. 443; illustrations 183; 7 plates. 15s.)

descriptions of the naked eye and microscopical changes that may be met with in the diseased cord. But the symptomatology and diagnosis of the different disorders are in no way neglected, and the practitioner or student, whose interest may be in the patient's complaints and physical signs rather than in the pathogeny of his disease, will find plenty to hold his attention. Thus, ten pages are devoted to the treatment of tabes dorsalis out of 60 pages given to that disorder. The printing and paper of the book are satisfactory; the illustrations, many of them original, are generally good, though they would be more valuable had the scale of their magnification been inserted in the descriptions of the photomicrographs. A good many of the photographic pictures have been somewhat freely and heavily retouched, with the result that they gain in clearness, no doubt, but this diagrammatic clearness is purchased at the price of their truthfulness as photographs. The coloured plates are excellent; Plate IV has considerably less than 1 square inch of "Plate" to more than 50 square inches of margin. We can cordially recommend Dr. Williamson's book to all who want a thorough and up-to-date textbook on diseases of the spinal cord.

Three years ago, when reviewing the second edition of Professor STARR's excellent textbook *Organic and Functional Nervous Disease*,[4] while appraising highly his masterly description of organic diseases, we were compelled to comment upon his somewhat scanty accounts of functional nervous disorders. We noted also the exclusion from his book of a considerable group of trophic disorders and angio-neuroses. Since that time the demand for another edition has given its distinguished author the opportunity not only of thoroughly revising its whole contents but of supplying the omissions we deprecated. The book has grown from 853 to 911 pages; functional nervous diseases are more fully described, and new chapters on vasomotor and trophic neuroses, including symmetrical gangrene, angio-neurotic oedema, and allied conditions, have been added. The result is that this book takes its place among the best general textbooks on neurology for the use of students and practitioners. It is clearly and well written, printed upon good paper, in comfortably large type, and is beautifully illustrated by numerous admirable diagrams, drawings, photographs, and plates, which are triumphs of the reproductive art. Speaking generally, there is throughout the book a minimum of theory and a maximum of ascertained fact; only the broad facts of etiology are discussed, but the greatest pains are taken to make the morbid anatomy, symptomatology, and differential diagnosis as clear and complete as possible. For these very reasons—for what it leaves out as for what it contains—this book admirably fulfils its purpose.

A well written summary of what is known about tumours of the mesencephalon has been published by Dr. VALOBRA of Turin,[5] who has met with two cases—one a vascular glioma of the anterior corpora quadrigemina, the other a neoplasm of the right cerebral peduncle. After giving an account of the anatomy and physiology of the mesencephalon, the author devotes 100 pages to the symptomatology of tumours of the corpora quadrigemina, tabulating the 55 cases recorded between 1861 and 1902. In the great majority of the instances choked disc, paralysis of the third nerve, and changes in the pupillary reflexes were observed. In most of them there were changes in the hearing, ataxia, paralysis of the fourth nerve; in a minority of the patients the sixth nerve was paralysed, hemiparesis with various involuntary movements, and disturbances of speech were recorded. In a few instances glycosuria, priapism, polyphagy, vasomotor and thermal disturbances were seen. The diagnosis is discussed at some length. The last seventy pages are given to the symptomatology of tumours of the cerebral peduncles, and the subject is very thoroughly treated. If the growth is in the tegmentum the paralysis is slight, the ataxia is marked, and the involuntary movements (with hemiasynergy) are prominent; while contractures and Babinski's sign are absent. If the growth is in the crusta or pes, then the hemiplegia is of the ordinary type, and is associated with a crossed paralysis of the third nerve. Dysarthria is very common; when changes in the optic disc are very rare, or appear only in the later stages. Over 350 references to the literature are given. Dr. Valobra's book is well arranged, and is clearly written, and it can be recommended to the attention of specialists in nervous diseases.

[4] *Organic and Functional Nervous Diseases: A Textbook of Neurology.* By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D., Professor of Neurology, Columbia University, New York, etc. Third edition, revised. London: Baillière, Tindall, and Cox. 1910. (Roy. 8vo, pp. 911; 300 engravings and 29 plates. 25s.)

[5] *Tumori del Mesencephalo: Studio Clinico ed Anatomico.* Doct. I. Valobra. Turin: S. Lattes and Co. 1910. (9¼ in. × 6½ in., pp. 210, with 9 figures in the text.)

THE INFLUENCE OF *X* RAYS ON THE THYMUS.

DR. RUDBERG'S[6] contribution to the study of the influence of the *x* rays on the thymus is an outcome of the special study devoted to the anatomy and physiology of this organ by Professor Hammer and his school at the anatomical institute at Upsala. The literature on this subject is recent and limited, and the writer's observations will therefore be new to many. In rabbits it was found that both the lymphocytes and the cells of the reticulum undergo rapid involution with direct exposure to the rays. The degeneration of the lymphocytes commences within three hours of exposure, and within twelve to forty-eight hours they have completely disappeared from the gland. With the departure of the lymphocytes, the cells of the reticulum fall close together, their appearance resembling that of epithelial cells. The degenerative changes in the cells of the reticulum are often not evident till the lymphocytes have disappeared, and the former's regeneration occurs much later than the latter's.

As the cells of the reticulum disappear, the parenchyma of the gland becomes subdivided into groups separated from each other by intraparenchymatous spaces, some of which are of considerable extent.

After slight exposure to the rays the lymphocytes and cells of the reticulum are regenerated by mitotic reproduction, but, after prolonged exposure, the new lymphocytes are derived from the lymph stream.

Even when it is protected by a screen, the *x* rays affect the thymus profoundly. Within forty-eight hours of indirect exposure to the rays the gland loses half its weight (comparison with control rabbits). This change is due to the death of some lymphocytes, and to the emigration of others into the general circulation. This emigration is attributed to a call made on the thymus by the blood and other tissues whose direct exposure to the rays has robbed them of lymphocytes. Rudberg concludes that the general loss of lymphocytes in the body is primarily due to the direct action of the rays, and that the leucolytic properties of the blood which have been observed are of secondary importance. Several coloured reproductions of microscopic sections are given.

TROPICAL DISEASES.

DR. B. SCHEUBE'S well-known work on the diseases of warm countries,[7] described on the title-page as a handbook for practitioners, has now reached a fourth edition. Knowledge of tropical medicine has been steadily advancing in the last few years, and as the new facts have to be incorporated in any work that pretends to keep up to date, the appearance of this enlarged and revised edition is explained. The type, general plan, and treatment of the different subjects is the same as before, and it will be sufficient to say that the treatment of the new material keeps up to the high standard of the past, but the book can hardly now be called a handbook, as the size has gone on growing and growing. So big and unwieldy has the volume become that it might be better to issue future editions in two or three separate volumes; it would, indeed, have been well had this course been followed with the fourth edition. Fault has been found with the accuracy of some of the maps at the end of the book before, and one still sees some glaring inconsistencies present there. On the whole, however, we have nothing but praise for the work.

Dr. CARNEGIE BROWN gives a very good account of amoebic dysentery in his book entitled *Amoebic or Tropical*

[6] *Om Thymusinvolutionen Efter Röntgenbestrålning.* Jämte nagra Iakttagelser öfver Leukolysen i öfrigt hos Röntgenbestrålad Djur. By Hans Rudberg. 1909. Uppsala: Almquist and Wiksells Boktrycken. (Pp. 106.)

[7] *Die Krankheiten der warmen Länder: ein Handbuch für Aerzte.* Von Dr. B. Scheube, Geh. Medizinal-Rat in Greiz. Vierte ungearbeitete und erweiterte Auflage. Jena: Gustav Fischer. 1910. (Sup. roy. 8vo, pp. 1080, 5 geographischen Karten, 1 Tafel, und 142 Abbildungen. M. 25.)

Dysentery; its Complications and Treatment.[8] It is divided into seven parts as follows: (1) General, (2) biological, (3) clinical, (4) pathological, (5) etiological, (6) complications and sequelae, (7) treatment. The history and literature of the disease is taken back to the year 1859, when Lambl found a rhizopod in intestinal mucus from a child suffering from infantile diarrhoea. From that date on to the present time the advances made are reviewed in detail, special stress being laid on the most recent work. The author is evidently a close follower of Schaudinn's work, and attaches much importance to the distinction between the *Entamoeba coli* and the *Entamoeba histolytica*. Whether the distinction is as clear as Schaudinn believed may be doubtful, but one thing these observations did, as Dr. Carnegie Brown points out, was to remove the chief obstacle to the recognition of amoebic dysentery as a distinct disease and to put the pathology of the disease on a much sounder foundation. At the same time, however, due praise must be given to the American school of workers in the Philippines, who by their clinical and pathological studies have also done much to bring this conception into favour. Some of the author's remarks on the symptoms of the disease, especially as to the changes in the blood, are open to criticism. A secondary anaemia does of course occur in chronic dysentery, but what the following sentence (page 98) means is difficult to understand: "When they (the toxaemic symptoms) are pronounced, the polymorphonuclears are especially numerous; but, in ordinary instances, all the varieties of white corpuscles are augmented indifferently. Eosinophiles, too, are relatively and absolutely increased." This is not correct, and the figures which follow "Large mononuclears and transition forms 10 to 17 per cent." are equally incorrect unless the patient be also suffering from malaria, a fact which is not stated. Such an account of the blood in dysentery will certainly mislead the uninitiated, and it would have been better to have left this part out altogether rather than have stated it in so imperfect a manner. The pathological part on the whole is accurate, but here again points occur to which exception might be taken. Treatment is discussed with sufficient detail. One point that will certainly be criticized by the English school is the withholding of ipecacuanha in acute dysentery or in acute exacerbations. The book is well and clearly written, and should prove a useful addition to the literature of this interesting and important subject.

A variety of malarial fever has been described mainly by the French school as the larval form, but the existence of such forms is so doubtful that mention is not even made of them in many standard English textbooks of tropical medicine. Laveran himself admits that the subject is not yet sufficiently elucidated, and Jeanselme and Rist, though admitting the type, believe that its frequency has been much exaggerated. The last-named authorities apply the term *formes larvées* to troubles, subjective or objective, generally without fever, which recur periodically and are curable by quinine. Neuralgias of various kinds—trigeminal, supraorbital, and occipital—sciaticas, and localized pains in various areas, such as the lumbar and splenic regions, are the chief symptoms mentioned, but complaints so widely divergent as cramp, intermittent torticollis, spasm of the glottis, asthma, angina pectoris, herpes, anosmia, and different forms of paralysis are also included. Probably, as Laveran hints, an examination of the blood by modern methods of investigation will clearly show that some of these maladies have nothing whatever to do with malaria. Nevertheless, Dr. Mousséos has written a book of some 150 pages on this subject,[9] which is dismissed in a page or a paragraph in some textbooks, while in others it is not mentioned at all; it is not surprising, therefore, to find a large amount of verbiage and padding introduced in Dr. Mousséos's book. After all that has been said of late concerning zoological nomenclature and the priority of names, it might have been hoped that authors would have been specially careful in coining new ones, but in the very first sentence in Chapter 1 Dr. Mousséos proposes to give the *Plasmodium malariae* the name *Haematobion laveranien*, a term which cannot be accepted. The part of the book which deals with the examination of fresh blood and of fresh blood coloured with methylene blue, is not only not convincing but is manifestly erroneous in many details, while the diagrams, instead of helping to elucidate matters, only make the mystery deeper. The clinical part is better, but by no means perfect. The book, then, though showing signs of much careful work and study, does not advance the subject at all, and cannot, therefore, be recommended.

[8] *Amoebic or Tropical Dysentery; its Complications and Treatment.* By W. Carnegie Brown, M.D., M.R.C.P. London: John Bale, Sons, and Danielsson, Ltd. 1910. (Double fcap. 8vo, pp. 279. 7s. 6d.)

[9] *Les formes larvées du paludisme. Diagnostic et traitement.* Par le Dr. Basile Mousséos. Paris: Vigot Frères. 1910. (Sup. roy. 8vo, pp. 155, 18 figs. Frs. 3.50.)

WORK AMONG LEPERS.

MR. JOHN JACKSON, the Organizing Secretary and Editor of the Mission to Lepers in India and the East, has recently brought out a second edition of his book, *Lepers; Thirty-six Years' Work Among Them.*[10] This deeply interesting record of a noble work of charity has been brought thoroughly up to date, and as it now stands forms a complete history of the Mission to Lepers, from its modest beginnings in the year 1874 down to the present day. For this purpose two additional chapters have been appended to the original edition, and these may almost be said to constitute the most interesting portion of the whole book, since for the most part they consist of the author's own personal experiences and observations during a recent tour through the leper villages and asylums of India. The descriptions of these places and the happy conditions in which their afflicted inmates live are a striking testimony to the efficiency of the system upon which they are conducted and to the zeal and practical charity of the brave men and women who have dedicated their lives to the service of the scourge which brands its victims as outcasts from human society.

It would be difficult to overestimate the value of the work which had been carried on for the last thirty-six years by the Mission to Lepers. In the East, as in Europe during the Middle Ages, lepers have always been looked upon as pariahs, and there being no organized system of relief before the foundation of the Mission, the vast majority of these unhappy beings (provided they were fortunate enough to escape being buried alive) were homeless outcasts, who wandered from place to place in a state of indescribable filth and wretchedness till they died of starvation or exposure. It was the sight of the appalling misery in which thousands of Indian lepers were living that moved a member of the American Presbyterian Mission at Ambala, Mr. Wellesley Cosby Bailey, to form the nucleus of the society which developed into the Mission to Lepers in India and the East. The original object of the mission was "to raise £30 annually to enable Mr. Bailey . . . to relieve a few lepers at his own station, and in addition to his ordinary work."

By the end of the first year the amount of money collected was large enough to permit the building of the first mission hospital at Chamba, in the Himalayas, and this auspicious opening has not been belied by the subsequent history of the society. From the very first the labours of its members were cheered by "constant tokens of success"; leper houses belonging to the mission are not only scattered throughout the length and breadth of India, but are to be found in Burma, Ceylon, China, Japan, Siam, Korea, Sumatra, and the Philippines. Moreover, the mission not only provides more than 10,000 lepers with proper accommodation, food, clothing, and medical treatment, but in addition supports twenty-five refuges for the untainted children of leprous parents, who are carefully guarded from every possibility of infection, and are thus given a chance to grow up healthy and useful members of society. It should be added that so far the results of this experiment, which has now been continued for some twenty-five years, have surpassed all expectations; and with few exceptions children who have been brought up in the mission homes become healthy adults, capable of producing healthy offspring. Mr. Jackson may well write with loving pride on such a subject. He tells his story

[10] *Lepers; Thirty-six Years' Work Among Them.* Being the history of the Mission to Lepers in India and the East, 1874-1910. By John Jackson, F.R.G.S., author of *Mary Reed, In Leper Land*, etc. With a short introduction by the Dowager Marchioness of Dufferin and Ava. Two maps and many illustrations. New and revised edition. Published by Marshall Brothers, London and Edinburgh. 1910. The Mission to Lepers, 23, North Bridge Street, Edinburgh; Rogaland, Cowper Road, Dublin; and 33, Henrietta Street, Strand, London, W.C. (Pp. 197. Price 3s. 6d.)

very simply, but with an earnest admiration which communicates itself to his readers; and his book will stand as a fitting memorial of a society of whom it may with truth be said that its sole aim is "to render the deeds of mercy."

The volume, which is well printed and bound, is illustrated by numerous photographs, and includes an introductory note by the Dowager Marchioness of Dufferin and Ava.

LOMBE ATTHILL.

THE *Recollections of an Irish Doctor*,[11] by the late Dr. LOMBE ATTHILL of Dublin, was written for, and will appeal to, an audience far wider than the medical profession, though for medical men a special interest must attach to a volume which sets forth, however briefly, the life-history of one who attained to an honoured position in the profession. The appearance of the present volume is due to some extent to the author's high ethical standard. Medical readers will recollect that during 1909 Dr. Atthill communicated to the BRITISH MEDICAL JOURNAL a series of articles in the nature of reminiscences of his professional life. These were reprinted for private circulation amongst the author's medical friends, but so popular were they that numerous non-medical friends desired to obtain a copy. Dr. Atthill felt, however, that the memoirs contained too much purely professional matter unsuited for the general reader, and in consequence he undertook the task of writing his recollections in a more general manner. The task of writing was accomplished, and the manuscript in the publishers' hands, at the time of the author's sudden death. To his widow devolved the duty of arranging the papers for publication. In connexion with the writer's sudden death, which occurred while hastening one day to catch a train, it is interesting to note his statement that to him sudden death always seemed the most merciful termination of life, and that he could never join in that sentence of the Litany in which prayer is made to be delivered from such an end.

The simple eloquence of diction, the quiet humour, and the profound faith in the controlling guidance of a Deity combine to illuminate the pages of a charming though somewhat disconnected narrative. The opening chapters contain some random remembrances of Ireland in the earlier years of the last century, when the journey from Holyhead to Howth might last a week or more, and when Ireland supported a population of nearly twice its present numbers. To the Dubliner the contrast between the city of the Forties and the present day, as told by one who had lived through a period of great changes, is vividly interesting. Later chapters deal with the writer's entry into medical practice, his early struggles, and with his success. The changes which he inaugurated as Master at the Rotunda Hospital were the starting-point of a series of advances which are still in progress; for their continuance he accords generous praise to his successors. The final chapters deal with the period of the writer's retirement, and are full of anecdotes of his contemporaries, and of reflections concerning life. It was a privilege to know Dr. Lombe Atthill; it is a privilege to read his book.

NOTES ON BOOKS.

IN his *Military Sanitation and Hygiene*,[12] Captain BLAKE KNOX has sketched out the methods employed in the army to maintain the soldier's health. To an army medical officer the volume is not very interesting, as it consists so largely of excerpts from different official books of regulations with which he is already well acquainted. Some of the sections are good, especially those dealing with the soldier's rations and the physiology of the march, which contain a good deal of up-to-date matter collected from various sources. Any one not having experience of army sanitation, and wishing to obtain some insight into the question, might gain a fair general knowledge of the subject by reading this book. In many parts it is, however, decidedly sketchy, while in others it might be curtailed without loss. Perusal of the book leaves the impression that it has been somewhat rapidly compiled, and that the author has not obtained the thorough grip of the subject which long and intimate practical acquaintance gives.

[11] *Recollections of an Irish Doctor.* By the late Lombe Atthill, M.D., some time President of the Royal College of Physicians in Ireland; President of the Royal Academy of Medicine, Ireland; and Master of the Rotunda Hospital. London: The Religious Tract Society, 4, Bouverie Street. 1911. (Demy 8vo, pp. 238. Price 2s. 6d.)

[12] *Military Sanitation and Hygiene.* By E. Blake Knox, B.A., M.D., D.P.H.(Hons.), Captain, R.A.M.C. London: Baillière, Tindall, and Cox. 1911. (8vo, pp. 346; 21 illustrations. Price 5s.)

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE FRIENDLY SOCIETY.

THE twenty-eighth annual general meeting of the members of this society was held in the rooms of the Medical Society of London, Chandos Street, W., on May 18th. Dr. DE HAVILLAND HALL, chairman of the executive committee, presided.

CHAIRMAN'S ADDRESS.

The CHAIRMAN said the society had had another excellent year. As a proof of the admirable relations which existed between the members and the committee, they had never had to trouble those gentlemen who had been elected arbitrators. Great progress had been made during the year; though the number of new members showed a falling-off as compared with the previous year, since the beginning of the new year they had begun to make up leeway, so that he hoped the falling-off was only temporary. The new proposals numbered 154; of these 11 were declined and 2 were uncompleted, so that after allowing for deaths, lapses, and members going out of benefit there was a net gain of 72 on the year, bringing the total number of members at the end of 1910 up to 2,923, which was far short of the 5,000 he had hoped the society would obtain by this time. Sixty-six members had increased their benefits, and the number of annuitants now amounted to 43, drawing £1,500 a year; this amount would go on increasing for some years, yet the funds had increased from £233,376 to £241,532, showing a net increase of £8,156. A country member had written to suggest that it was undesirable to keep adding to the reserve fund, and that the members should receive increased benefits or pay reduced premiums, but the correspondent had evidently overlooked the fact that the society had to deduct £82,000 for the annuity fund and nearly £18,000 for the life insurance fund. The cash bonuses paid to members during the year had been £776; this amount would gradually increase, and he thought the society could reckon that during the current quinquennium about £4,500 will have been disbursed in bonuses. It had been considered desirable by the committee to write down the securities of the society to the extent of £2,254 owing to the drop in the value of almost all securities throughout the land, but this hardly affected the society, because the interest it received was the same, and there did not appear to be any probability of the society having to realize its securities. The sickness claims amounted to £14,631, and this, he believed, was the very first time in the history of the society that it had experienced a falling-off in sickness claims; hitherto they had steadily mounted up, and in the previous year the rapid increase had caused some anxiety. The amount received in sickness contributions had been £18,529. It was curious to note how very similar the claims were each year. Of the 687 claims received in 1910, those arising from accidents numbered 110; of late years motor accidents were getting more numerous. One of the most important features of the work of the society was that thirty-six members who were suffering from chronic illnesses had been in benefit for the whole of the year; it was a permanent provision made for such members up to the age of 65, and if only they had followed Mr. Ernest Hart's suggestion and had taken out an annuity to commence at 65 they would not feel the loss of sick pay on reaching that age. Altogether the society had paid out £180,000 in sickness pay. He had again to thank the BRITISH MEDICAL JOURNAL, the *Lancet*, and the *Medical Press and Circular*, which had been, as in the past, exceedingly kind in inserting notices of the society's meetings and helping them in every possible way. The Chairman concluded his address by presenting the annual report to the meeting.

Dr. BRINDLEY JAMES proposed:

That the report of the committee and the audited accounts for the twelve months ending December 31st be received and adopted.

The motion was seconded by Dr. PALMER.

Dr. CRICHTON expressed the opinion that it was not necessary to keep increasing the reserve funds, and without interfering with the stability of the society, some additional benefits might be given to existing members, either by way of larger bonuses or reduced premiums.

The CHAIRMAN said that he would suggest to the committee the advisability of considering whether existing members should not receive rather more than they had done in the past.

The resolution was then put to the meeting and carried unanimously.

ALTERATIONS OF RULES.

Certain alterations of rules suggested with a view of assisting the work of the society were agreed to, on the motion of Dr. J. B. BALL, seconded by Dr. F. WALLACE.

ELECTION OF OFFICERS.

The whole of the officers and committee were re-elected without discussion.

VOTE OF THANKS TO CHAIRMAN.

On the motion of Dr. BRINDLEY JAMES, seconded by Dr. PALMER, a hearty vote of thanks was accorded to the chairman for presiding. In proposing the motion, Dr. James expressed the hope that when the time came for Dr. Hall to leave the society under the age limit, the society would elect him as their president.

The CHAIRMAN acknowledged the vote of thanks, and the proceedings terminated.

COLONIAL AND FOREIGN SYSTEMS OF POOR LAW RELIEF.

MEDICAL RELIEF.

(Concluded from page 1068.)

IT is important to state that the whole of the descriptions of foreign and Colonial systems of relief are extracted from the official Blue Book, and no responsibility for the correctness of the statements there made can be accepted. As the information, however, was all obtained from official Government authorities in the various countries or from actual legislative enactments, there is little probability of any serious errors.

BELGIUM.

The laws of Belgium were intended to bring the small communes into line with the towns, and though in the main they follow the French system, they fall far short of the completeness of the French in actual practice. The Belgian commune is given three alternatives: (*a*) It may provide a hospital service of its own; or (*b*) it may contract with a neighbouring hospital, or (*c*) it may organize an outdoor medical service, the last alternative being an amendment of the first Government proposal, which only related to hospital relief. The cost falls primarily on the local relief committees, though the communal council has to make good deficits. In theory one of these plans is compulsory on every commune, and if a commune fails to act the State may step in and organize a medical service. In practice this statutory power is not effective, largely owing to the fact that the cost falls entirely on the individual communes, save for some grants in aid of capital expenditure and the resources of the communes are often inadequate. All the poor who fall sick in any commune have the right to free medical relief regardless of their settlement, but the authorities may require contributions from those who are able to pay anything. The medical officers are appointed solely by the relief committees, but, as stated above, the law is in practice often a dead letter.

In Brussels medical relief is provided by two hospitals and by a staff of medical officers for outdoor relief. The entire medical staff is appointed by the Conseil Général, with the approval of the municipal council; it is responsible solely to the Conseil Général. For the outdoor service Brussels is divided into fourteen districts, to each of which two or more medical officers are assigned, whose duties are to attend daily at the *maisons de secours* to give free consultations to any poor persons who present an order, to visit the sick poor, to give certificates for hospitals, and to report on the sanitary condition of houses in their district. Antwerp has a far better organized outdoor medical service than Brussels. The service is provided by twenty salaried medical officers distributed over the town, poor patients having complete freedom of choice among the entire medical staff. In the town of Hassen, which has a population of 160,000, there is a similar free choice of doctor, and the eight medical officers who have accepted the tariff of the *bureau de bienfaisance* are paid by the visit, the average rate being 50 cents a visit, but with a fixed maximum of 300 francs a quarter to any one medical officer. A visit by a medical officer or a first consultation at one of the five dispensaries provided must be given on demand of any applicant, but the case is inquired into immediately afterwards, and, unless the bureau is satisfied of the patient's poverty, no further relief is given.

GERMANY.

State sickness and invalidity insurance in Germany has already been fully described in the JOURNAL, and attention is here confined to Poor Law medical relief. It is important, however, to note that, out of a population of some 40,000,000, about 13,000,000 are insured for sickness, and about 16,000,000 for invalidity. In spite of this, it has been found that the benefits from the insurance are often not sufficient for the maintenance of the sick, and recourse to the Poor Law is necessary; though it is true that the Poor Law has been considerably relieved by the insurance, the relief has not been so great as was expected. The communes are left practically free to determine the methods they will adopt for administering poor relief, and in the country districts relief is seriously deficient, having changed little during the last half-century, mostly owing to the inability of the communes to bear the cost. The provision enabling combinations of communes into "unions" has been of little use, as the spirit of separatism is too strong. The provision of hospitals through the insurance has, of course, greatly assisted the communes, and in Prussia there is one hospital bed to every 284 inhabitants. In strong contrast to the deficient provision for medical relief in the country districts, the large towns have generally a fairly well organized system.

In Berlin Poor Law is part of the general municipal administration, and is in the hands of a special committee—the Armdirection, or Poor Board, one-half the members being members of the municipal authority and the other half being elected by that authority, and among the latter must be included doctors, ministers, and other persons specially fitted for the position. For indoor medical relief Berlin is well provided with hospitals, as in 1904 there were 24 public and 68 private institutions for the sick, the public hospitals having 7,623 beds, or 1 to every 264 persons. In 1905 over 45 per cent. of the hospital inmates were beneficiaries of the sickness insurance. The Charité Hospital, which is well endowed, and has about 1,100 beds, so far as internal management is concerned, is independent of the municipal Poor Law system, except for a provision that it shall grant annually 100,000 days' free medical treatment for pauper inmates, though beyond that payment is made to it by the Poor Board. The large majority of the sick poor are treated at the Charité and at the four municipal hospitals, which have 2,968 beds. The Poor Board has also an arrangement with twelve private hospitals. In the course of 1906 some 50,000 poor patients passed through the hospitals, admission being usually granted by the Poor Law medical officer who has been attending them, the certificate of admission requiring the signature of the president of the relief committee. The medical staff are urged to refrain from sending cases to hospital except in cases of necessity, owing to the great cost of hospital treatment, which amounted in 1906 to £209,459.

For outdoor medical relief Berlin was in 1906 divided into 101 medical districts. The medical officers are appointed by the Poor Board, and have to report quarterly and annually as to the patients treated. They are limited by regulations as to the remedies or surgical appliances they may wish to prescribe, the board's sanction being specially needed for the more expensive appliances. Otherwise the medical officers may prescribe not only the necessary medicines or appliances, but also any

extras in the way of diet, only being required to acquaint the local committee. Tickets for medical relief are valid for a month, and the medical officer may, if necessary, employ a nurse for any case. The Poor Board has also made arrangements with a number of specialists for diseases of the eye and ear and for diseases of women and children, and the district medical officer may at any time transfer a case to one of the specialists, who are paid on a fixed scale of fees for each case. Similar arrangements to those existing in Paris are made for mothers with young children, except that the free milk supply is only for eight days, and beyond that time it is supplied at cost price.

HOLLAND.

In Holland outdoor medical relief is entirely in the hands of the municipal councils, which in some towns appoint medical officers with fixed districts, while in others payment by the case is made to those general practitioners who accept the scale of fees offered. Amsterdam has developed a system of medical relief similar to the French system, poor persons being registered at the beginning of the year on a free medical relief list. Cases of sudden and urgent need are attended at once without registration, but inquiry follows immediately. The administration is in the hands of a central office with a branch in each of the nine districts of the town, and to each district are attached two doctors, a surgeon, nurses, and midwives; the district office is open daily for consultations and treatment, and medical relief is allowed far more readily than ordinary relief. Of the total cost of relief, ecclesiastical and private charity provides 53 per cent., but the greater part of the medical relief is provided by the municipalities.

DENMARK.

The fact that the population of Denmark, with the exception of a fair number of market towns, is mainly rural has led to the development of some special characters in the system of relief. Ordinary relief is largely left to the local authorities, though the State contributes indirectly by maintaining asylums for the insane and institutions for the blind, deaf, and dumb, and, above all, by paying the salaries of the local medical officers and largely supporting hospitals for fevers and tuberculosis. The Legislature has given special attention to sickness insurance of a voluntary character, and sick clubs exist in large numbers which are subsidized by the State and the local authorities, the clubs in return being under some measure of public supervision. Sick clubs with a membership of fifty may apply for State authorization, which carries with it a State subvention, but the club rules must limit membership, as far as medical benefits are concerned, to persons belonging to the working classes and over 15 years of age. Membership entitles to free medical attendance and hospital for the member and his children under 15 years living with their parents, as well as to daily sick pay. To prevent chronic cases getting more than their fair share of the benefits a rather curious provision is often made that any member who has had sixty weeks' free medical relief in three consecutive years shall cease to be a member of the club unless he can produce a certificate that his complaint is not chronic; otherwise medical relief in the future must be obtained from the Poor Law. The sick pay may be reduced or stopped altogether if a patient refuses to carry out the doctor's orders. The clubs are managed by locally elected committees, and, while largely autonomous, are subject to the supervision of a State official, the Inspector of Sick Clubs. To co-ordinate the regulations and working of the clubs the law requires the formation of county committees composed of deputies elected by the clubs under the chairmanship of the inspector. This system of voluntary sick clubs assisted by the State is rapidly growing in favour, and is evidently designed to save the poor rates.

Copenhagen has a system of its own, being divided into districts, to each of which one medical officer or more than one is appointed if necessary. Orders for medical attendance are given by a district officer, and are valid for a month. The medical officers may freely order extras in the way of food, and several districts provide paid nurses for the home patients.

NORWAY.

The scheme of poor relief in Norway is combined with the general local administration, the country being divided into twenty counties, including Christiania and Bergen, which are counties of themselves. The local councils are elected on what is practically a universal franchise, and poor relief is deputed to standing committees with a semi-independence. The Elberfeld system is largely adopted, but few details are given of medical relief. A law passed in 1909, and coming into operation in 1911, provides for compulsory sickness insurance of all persons working for wages except (*a*) casual labourers, (*b*) persons earning over £66 in the country and £77 in towns, and (*c*) persons suffering from chronic disease. The insured are to be classified according to their wages, and both the contributions and the benefit vary accordingly. Towards the premiums, the insured will contribute two-fifths, the State one-fifth, and the remainder will be borne by employers and local authorities equally. The insurance will be managed by district sick funds, and benefits comprise free medical attendance and medicine (including attendance at confinements), and sick pay for twenty-six weeks, the insured being also entitled to free medical treatment for wife and children. At present, for Poor Law medical relief, preference is given to hospital treatment, the hospitals mostly belonging to the civil authorities.

ITALY.

In Italy the provision of medical treatment and medicine is obligatory on the communes, but only so far as it is not provided by charitable institutions. The State assists in the prevention of malaria by selling quinine at a low price, or by distributing it gratis. It also contributes something like £12,000 for the treatment of the poor suffering from pellagra, and about £20,000 towards the expenses of dispensaries and hospitals for venereal diseases.

AUSTRALASIA.

Poor Law relief in Australasia generally is largely mixed up with charitable aid, and the use of the term "pauper" is much resented. The States are generally well provided with hospitals, which are in all cases subsidized by the State. The statistics given in the report show that the total yearly cost of all kinds of relief was £1,615,969, of which the very large proportion of £737,784 went for hospital treatment.

New Zealand.

New Zealand has a very complete provision for medical relief, which is regarded as quite distinct from ordinary relief. There are some fifty-two hospitals in the country which in intention are for the poor, though a great number of paying patients are admitted. Outdoor medical relief administered by the out-patient departments of the hospitals is also open to the same abuse, and, indeed, in some districts the hospital has become a sort of benefit society which insures free outdoor medical treatment for 26s. a year for a whole family. It is stated that the system of State subsidies and rate aid has led to the multiplication of expensive hospitals in places where they are quite unnecessary. The reason for this is that though such hospitals are initiated by voluntary subscriptions, in the end they come to rely mainly on State aid and the rates, and there is no sufficiently strong controlling authority. The cost of medical relief—that is, the cost of the entire hospital service—in 1906 was £167,437, of which £116,539 came from State and rate aid. Thus the burden of free medical relief was equivalent to a tax of 2s. 7d. per head of population. The Inspector-General states that the State subsidy for indiscriminate outdoor relief tends directly to increase pauperism. Voluntary contributions are dwindling away, and the State subsidy is really a premium on extravagant expenditure. It is a serious anomaly that in many districts hospitals are in complete administrative independence of the district relief boards and yet have a right to State and rate aid. The district board has merely to grant what the hospital trustees estimate they will require, and, though the board may, if it regard the estimate to be excessive, appeal to a Government Department for inquiry, this remedy is not regarded with favour. The State system of insurance for sickness

and old age, which came into force on January 1st, and is on a voluntary basis, may considerably modify the present conditions of medical relief in the near future.

New South Wales.

The bulk of poor relief in New South Wales and Victoria is primarily charitable, with Government grants. New South Wales has 132 hospitals, of which 124 receive subsidies and they generally provide outdoor relief to the sick. The subsidies are dependent on the State officials having the right to give admission orders, and in 1905 40 per cent. of the income of the hospitals was derived from the grants. Some time ago the Government gave notice of its intention to abandon its custom of giving £1 for each £1 subscribed, as many of the wealthy institutions did not require so much. The State right to inspection seems to be of little practical use. There is also a system of subsidizing friendly societies that provide medical attendance and sick pay, which has already been described in the JOURNAL.

Victoria.

In Victoria there is a certain amount of Government control of the hospitals in return for the grants. General medical relief is provided by forty-one general hospitals, with six special hospitals and nine other institutions. Outdoor relief is administered by most of the hospitals and by two free medical dispensaries, all charitable foundations but receiving subsidies. The system of paying wards in vogue in most of the hospitals was put down by making its abolition a condition of the grant, as the hospitals were intended only for the poor.

Queensland.

The Queensland Government has undertaken a larger measure of direct relief than the other States, and the State outdoor relief has quite overshadowed the work of charitable relief, though still charity is largely subsidized. The police officer is the local medium for relief, and in many cases both awards the relief and acts as inquiry officer. There are seventy-one hospitals, all charitable institutions receiving grants from the State, and two State hospitals, one for consumption and the other for chronic diseases. Their management varies widely, but admission can be obtained through the local police. There seems to be a very confused relation between charity and State action in regard to outdoor relief. A system of invalidity pensions claimable by persons over 16 years of age, permanently incapacitated from work, came into operation last December, the cost being borne by the Commonwealth.

CANADA.

Poor relief is a comparatively small affair, as the State Secretary says there is but little poverty. In Quebec it is mostly by private charity with some State grants, while Nova Scotia and New Brunswick have a more complete local organization. Medical assistance is mostly given in charitable hospitals receiving State and municipal grants, though in a few instances the local authorities have themselves founded hospitals for infectious cases and for tuberculosis. Ontario has some sixty-one charitable hospitals receiving State and municipal aid, and generally providing outdoor medical relief. The municipal contributions are not compulsory, but depend on the urgency with which the hospitals can press their needs, or the recognition by the local authority of its obligation to pay for its own poor.

THE UNITED STATES.

It is impossible here to give any full account of the United States, as the Poor Law is not a concern of the Central Government and each State is a law for itself. As a rule, however, institutional treatment for the sick poor is provided in the almshouses, when the authorities do not avail themselves of charitable hospitals. For outdoor medical relief some States employ "poor doctors" or "county physicians"; but there is nothing like a uniform organization, and, indeed, in many cases there is no organization at all, medical relief, both indoor and outdoor, being mostly a matter of charity, though the overseers may defray medical expenses.

New York State is in an exceptional position, as it has undertaken to provide relief directly to certain classes of the poor, to subsidize certain institutions, and to exercise supervision over charitable institutions. Institutional relief is the primary mode of relief, out-relief being carefully restricted. There are several special State hospitals, and among them may be mentioned the Craig Colony for Epileptics, with accommodation for 1,050 inmates, a hospital for crippled children, and one for tuberculosis, in addition to the numerous charitable hospitals which are also utilized. Separate accommodation for the sick poor is gradually being provided in connexion with the almshouses, but in many cases the sick are still treated in the ordinary wards and attended by the other inmates. The lack of accommodation for the sick poor is recognized, and is to some extent met by the provision of the law which allows of the sick being sent to charitable hospitals at a rate of payment of not more than 29s. a week. For outdoor medical relief abundant provision is made by charity in the way of dispensary treatment in New York City. An inquiry in 1898 showed that "in many cases dispensaries had been established by private practitioners as a means of promoting their own practice under the guise of charity," and a law was passed in 1899 restricting these institutions, and providing that they must be in all cases licensed by the State Board of Charities, and that in order to confine them to the necessitous each dispensary must have a registrar to investigate the personal circumstances of each applicant for medical relief. The statistics show that in 1896 over a million persons were treated at dispensaries in New York City. Apart from the dispensaries, medical out-relief is to a slight extent given by a few societies formed for the purpose, but mainly it is administered on the orders of the overseers by local practitioners or by salaried medical officers. The system in New York City has been repeatedly changed, but at present the responsibility is vested in a salaried official—the Commissioner of Public Charities.

SCHEMES OF SOCIAL SICKNESS INSURANCE.

Though not strictly germane to the subject of public relief, sickness insurance is regarded as a preventive measure, and with that object has been widely adopted. The report gives some tables showing the systems of sickness and invalidity insurance in force in the different countries, some of them being of universal character, and others applying only to particular industries. The first scheme of universal character was, of course, that in Germany instituted under the Bismarckian plan of State socialism. France took fifteen years to consider the subject, and only recently passed the law for invalidity and old age insurance. In the meantime Belgium, Austria, and the three Scandinavian countries have adopted universal schemes either for old age or sickness. Of the English-speaking countries, New South Wales comes near to a system of State-assisted insurance in its contributions to the funds of friendly societies, the voluntary State sickness insurance of New Zealand being only just at its inception.

It may be of interest at the present time to give some of the latest statistics for the German insurance schemes. In the year 1908 the number of persons in Germany insured for sickness was about 13,130,000; the total contributions were £16,913,000, of which the workpeople contributed two-thirds and the employers one-third, nothing being contributed by the State. The value of the benefits paid during the year was £15,969,000. For invalidity and old age in the same year there were about 16,000,000 insured; the premiums amounted to £9,067,000, paid half by the employers and half by the workpeople, and the value of the pensions paid during the year was £7,961,000, towards which the State contributed £2,484,000. The accumulated funds at the end of the year were—under the sickness insurance £13,746,000, and under the invalidity insurance £73,550,000.

RECENTLY published statistics show that suicide has been steadily increasing in the United States during the last twenty-one years. In the sixty-five largest cities of the States the annual rate of suicide was 12.3 to every 100,000 of population in 1890. In 1895 the corresponding rate was 15.8; in 1904, 20.7; since 1907 it has remained above 20. The highest actual rate in a single city was 60 in San Francisco; Oakland, California, came second; and Hoboken, New Jersey, third, with a rate of 52.6.

THE COMPOSITION OF CERTAIN SECRET REMEDIES.*

MEDICINES FOR INDIGESTION, CONSTIPATION, ETC.

THE proprietary medicines for indigestion, constipation, liver disorders, and allied complaints, particulars relating to which are given below, are, it is scarcely necessary to say, only a small selection out of the very large number of those offered to the public. They are selected as comprising (with certain others previously dealt with, such as Seigel's Syrup and Beecham's Pills) those which appear to be most widely advertised and sold, and as being probably representative of this very large class of nostrums. The medicines examined include several very old-established ones and some of quite recent introduction; and it is instructive to notice that it is the old-established ones for which the least extravagant claims are made, and which contain drugs likely to have many of the results promised, while the one most recently introduced is also the one for which the most extravagant and absurd pretensions are put forward in an aggressive manner, and is also precisely the one in which no medicinal substance whatever could be detected.

In the examination of pills or tablets containing mixtures of such substances as aloes or extract of aloes, extract of colocynth, resins of jalap, scammony, or podophyllin, oils of peppermint, clove, or cinnamon, with powdered drugs like ginger, capsicum, cardamoms, colocynth, rhubarb (all yielding extracts as soon as the pills are treated with solvents), and the whole probably massed with the aid of syrup, glucose, liquorice powder, etc., the difficulties to be encountered by the analyst are far greater than in many of the combinations that have been dealt with in previous articles; and it is not possible as the result of any reasonable and practicable amount of investigation to assign a quantitative formula for any such combination of articles which are themselves variable, and it may easily happen that some constituents will escape detection, or will be impossible of identification. It is, therefore, better to avoid naming any quantities of the different ingredients found, even when the quantitative determinations (which have been made in every case) have left very little doubt as to the amount of some particular substance present in a given combination. And it must be remembered that with several of the pills other ingredients than those named may have been present in small quantity and escaped detection, though it may fairly be said that this does not apply to powerful or very important ingredients.

MER-SYREN.

This consists of powders which are supplied at 2s. 9d. per box of twenty by Mer-Syren, Ltd., London. There are several indications that the claims made for this article have undergone progressive evolution. The earliest advertisement of it which is before us is a handbill apparently issued three or four years ago, which commences thus:

"They that go down to the sea in ships" and Suffer from the distressing Malady of Sea-sickness will find a Safe and Sure Preventive and Antidote in Mersyren.
Mersyren is a never failing Rapid Remedy.
Mersyren is not a Drug.

And the name and address at the foot are:

The Mersyren Syndicate, 14, America Square, London, E.C. and Singapore Dispensary, 40, Raffles Place, Singapore.

A little later a lengthy advertisement in a weekly paper is headed:

Try this "quick cure" for Biliousness and Indigestion—Free of Cost.

The following extracts are from what follows the heading:

Digestive troubles are the curse of the present generation. And drug remedies for digestive ailments are almost a bigger curse still. . . .
Here is a way (and a free way) by which you can absolutely cure your Digestive trouble by a remedy which is neither a drug nor a purgative.
Here is a way by which you can absolutely cure:—

Biliousness,	Indigestion,
Sick Headache,	Liver Trouble,
Dyspepsia,	and other
Gastritis,	Digestive Disorders.

Free of Charge.

Here is a perfect natural remedy which will be freely sent to every reader who writes for it, and which will quickly, almost instantaneously, cure your trouble and enable you to regain that good health, those unburdened spirits, to which, perhaps, you have been a stranger for so very long.
You have heard of "Mer-Syren," of course!
You have heard of it as a non-drug, non-purging remedy for Stomach and Liver Trouble.
But perhaps you have not as yet quite realized what a wonderful remedy it is. . . .
"Mer Syren" is a *tasteless powder*. It is pleasant to take, and swift and sure in action. It is neither a drug nor an aperient. And it *cures in one dose*.

A little later again appears a whole-page advertisement in a London daily; the heading of the first two columns is—

"Remarkable New Book on Health
by Dr. Pearson.
'How the Body Cures Itself.'"

and the remainder is headed—

"The '10 Minute Mer-Syren Health Lessons.'"

The first part is devoted to a description of the book, and a summary of its twenty so-called chapters. The following extracts will suffice as a specimen:

Originally published at 2s. 6d., a popular Second Edition is now being given free to all who will put to the practical test of personal trial the Author's "10 Minute Health Lessons." . . .
The book tells what every good Doctor knows, but is, for many reasons, unable to tell his patients.
The whole book is written in straightforwardly candid appreciation of the fact that the Layman Needs—and Desires—Health Knowledge of this vital kind . . .
"Mer-Syren" is the name of a tasteless powder derived from a herb which powerfully aids the health-reparative power of the body.
It is not a pill—not a purgative—not weakening—not stomach-upsetting—but just a "Mer-Syren 10-Minute Health-Lesson" to that part of your body which needs it. . . .
. . . first of all, get and read Dr. Pearson's book, *How the Body Cures Itself* (by means of the "Mer-Syren 10-Minute Health-Lessons") . . .
The book itself is free.
You have only to get a 2s. 9d. packet of 20 "Mer-Syren 10-Minute Health-Lesson" Powders.

The "book" is unquestionably the *pièce de résistance* of all this advertising. It is a paper-covered pamphlet of 63 pages, each of the "chapters" referred to in the advertisement occupying an average space of less than three pages. It is described as—

By Dr. Pearson, Author of
"The Liver in Health and Disease,"
"What to Eat and What to Avoid,"
"The Abuse of Phosphorus,"
"The Etiology of Cholera,"
etc., etc.,
(Late Principal Medical Officer, North Bhangulpore, India).

Reference to the volume of maps in the *Encyclopaedia Britannica* failed to discover any place named Bhangulpore or North Bhangulpore in India.

The knowledge possessed by this "Late Principal Medical Officer," who curiously omits to give his initials, or his degrees or qualifications justifying the prefix "Dr.," may be judged from the following extracts:

This pamphlet has been compiled for the benefit of the myriads of afflicted in every part of the globe, who, after trying the ordinary means of cure at present obtaining to no purpose, are casting about to discover a method of treatment for disease which shall cure their ailments and restore them to their former healthy condition. . . .
This remedy—Mer-Syren—the direct outcome of many years' careful and painstaking study on the part of a few men who may be said to have devoted their whole lives to investigations as to the Cause and Cure of Disease—is assuredly one of the greatest boons ever conferred upon suffering humanity.

* Previous articles of this series were published in the following issues of the BRITISH MEDICAL JOURNAL: 1904, vol. ii, p. 1585; 1906, vol. ii, pp. 27, 1645; 1907, vol. i, p. 213; vol. ii, pp. 24, 160, 209, 393, 530, 1653; 1908, vol. i, pp. 833, 942, 1373; vol. ii, pp. 86, 505, 1022, 1110, 1193, 1285, 1566, 1697, 1875; 1909, vol. i, pp. 31, 909, 1128; vol. ii, p. 1419; 1910, vol. i, pp. 151, 213, 393, 1005, 1063, 1120; vol. ii, pp. 982, 1350, 1928; 1911, vol. i, pp. 26, 91, 823.

The plain fact is that, as regards the nature of disease, the Medical Profession is pretty much where Harvey left it nearly three centuries ago, whilst the means of cure are little better than those employed by Celsus or Galen; and diseases are arranged in a few haphazard groups, as motley and incongruous in their composition and disposition as the various sections of, say, a political party.

We are, therefore, driven to accept the dictum of Hippocrates: "*All diseases spring from one cause, and the types of all diseases are the same.*" This common origin of all diseases is to be found in that condition, which, for want of a better definition, we shall call "*Debility of the Cells,*" either *partial or general.* Systems and theories may follow each other like the waves of the sea, but the trend of medical opinion is setting in this direction, and, to the opinion expressed by the Father of Medicine, all Schools of Medicine must come at last. . . .

The Mineral Acids, Nitric, Hydrochloric and Sulphuric, and Mineral Oils (Petroleum) are in everyday use as remedies, whilst many of the Earths are diverted from the uses for which they were intended by the Creator, and forced into the human stomach. Animal substances, many of the most repulsive nature and origin, are almost universally used by Medical Men the world over . . . beetles, spider's web, crab's eyes, tiger's tongue, rhinoceros' horn, and other repulsive objects form part of the Materia Medica now in vogue with the Medical Profession. . . .

The old Blue Pill and Black Draught of our forefathers has given place to various Salines and the waters of many Spas in the treatment of Bilious affections, but all to no purpose, the discovery of Mer-Syren ushered in a new era in the History of Medicine; not only so far as the Liver was concerned, but also in the case of many other affections regarding the treatment of which medical men of every school confessed themselves to be nonplussed. . . . Under its specific and benign—yet effective—operation the powers of Nature have been reinforced and strengthened so that she has been enabled to quickly relieve herself from the incubus of disease, and, phoenix-like, arise from her ashes renewed, invigorated and endowed with all her pristine vitality.

This is the sober opinion gleaned from an experience of one versed in medicine for a period of nearly forty years. . . .

Mer-Syren is composed of the active principles of certain rare plants which flourish in the valleys situated on the southern slopes of the Himalaya, between the immense gorge separating Nepaul from Bhutan on the East, and Almorah on the North-West—the very names of which are unknown to Western Science, and are therefore not included in any Pharmacopoeia extant. Mer-Syren, therefore, cannot be imitated either in Europe or the two Americas. Nevertheless, purchasers should protect themselves by observing that the name of the Mer-Syren Company appears on every box, and that the place of origin is clearly stated thereon. The alkaloids upon which its extraordinary and startling effects depend cannot be determined by analysis, as *all organic substances defy detection by any means known to chemical science.* . . .

There are in fact no diseased states or conditions in which the use of Mer-Syren does not produce beneficial results.

Thus the "powder derived from a herb" of the newspaper advertisement has become the "active principles of certain rare plants" in the book, just as the remedy for sea-sickness has become the cure-all:

for Mer-Syren possesses the wonderful property of permeating every part of the organism with the same good influences. Moreover, although its gentle stimulating and strengthening powers are felt throughout the entire organism, yet its specific healing actions are principally directed to any part labouring under diseased or disordered action. By virtue of its unique and specific properties, Mer-Syren immediately operates upon any organ or tissue whose functions may be in any way deranged, or whose structures may be breaking down in consequence of disease. And all structures in either of the two just named abnormal conditions will instantly respond to the gentle action of Mer-Syren, when every other form of treatment produces no effect whatever.

The directions supplied with the powders were as follows:

For Indigestion and Dyspepsia: Upon rising place two Powders dry upon the tongue and wash down with a draught of hot water. For Bilious Headaches: Take one Powder, or two if the attack be very severe, and wash down with cold water.

In chronic cases it is obvious that in order to effect a complete recovery the Powders should be taken regularly until cured.

The powders had an average weight of 25½ grains. Analysis showed the material to consist principally of starch, with a little broken vegetable tissue. Microscopical examination showed the starch to be that of the potato, while the histological elements of the tissue also agreed exactly with those of the potato. Some raw potato was therefore dried without heat and powdered, and the two powders compared in their behaviour to a large number of tests, qualitative and quantitative, and also by means of the microscope. The potato which was prepared as described became greyish in colour during the drying, whereas the Mer-Syren powder was of a creamy colour; no other difference was found between them, and no other substance but potato could be detected.

CICFA.

This medicine, which has had four different names, but appears to be called Cicfa at present, is supplied at 1s. 1½d. and 2s. 9d. per package by Capsuloids (1909) Ltd., Borough, London, S.E. A 1s. 1½d. package was found to contain 21 tablets, and a 2s. 9d. package 63.

The original name of these tablets appears to have been "Tablones," but in consequence of legal action taken by another firm, whose trade mark this word was considered to resemble too closely, it was changed to "Cicfa." The derivation of this word is supplied by the phrase which occurs freely in the advertisements, "Cures Indigestion Constipation Flatulence Acidity." Later, however, this word was dropped and the medicine advertised as "Mother's Advice"; more recently still it was advertised as "Tablenes," while now the former name of Cicfa seems to have been readopted.

The preparation is advertised in the following terms:

You may eat what you please when you please if your Indigestion, Flatulence and Constipation are not merely Relieved but permanently cured by "Mother's Advice" (Formerly called "Cicfa"). Purgatives often relieve Indigestion and make you feel better for a few days. "Mother's Advice" cures absolutely and permanently, because while purgatives simply remove the undigested food, "Mother's Advice" completely digests everything you eat.

WHY "CICFA" MUST CURE EVERY CASE.

All the tortures of Indigestion, the Acidity and Heartburn, with Teeth on Edge, the Burning Spot behind the Left Shoulder Blade, with pains shooting through towards the Heart, the Heart Palpitation, with Cold Hands and Feet and General Weakness, the Flatulence and Pressure and Discomfort, the rumbling and often excruciating Bowel pain, are all due to your failure to digest your food, and three-quarters of it is due to Failure To Digest Starchy Food Like Bread, Potatoes, Bananas, etc., but you like to eat those, and you need them, and if you could digest them you would have none of this pain, discomfort, and misery, and you would have all the nourishment which comes from such food when well digested.

You do not digest the food because you have not enough digestive juices in the Stomach and Bowels. "Cicfa" contains just enough digestive material to make sure that the albuminous food like meat, eggs, etc., will be digested in your stomach, and just enough of that wonderful digestive material Which Is Not Found In Any Other Proprietary Medicine which digests all starchy food like bread, potatoes, bananas, etc.

DOSE.—One with the early part of each meal three times daily. Severe cases may take two with each meal for a short time, and then reduce the dose as the cure proceeds.

The tablets had a chocolate-coloured sugar coating; after removal of this they had an average weight of 1.85 grains. Analysis showed the presence of pepsin, diastase, reducing sugar (apparently maltose), a bitter extract agreeing in characters with extract of cascara sagrada, a small quantity of a pungent substance which appeared to be oleo-resin of capsicum, together with talc and a little starch, the last being probably derived from the coating. The digestive power on egg-albumen and on starch was determined; the former corresponded to about ⅜ grain of pepsin of B.P. strength in each tablet; the material digested about 1.4 times its own weight of starch in half an hour at 40°, which corresponds to a very small proportion of diastase, but as commercial diastase varies much in strength, no quantity can be specified as equivalent; from a comparison of the bitterness and pungency of a mixture made up to imitate the tablets the amount of extract of cascara appeared to be about ¼ grain in each, and of oleo-resin of capsicum about $\frac{1}{300}$ grain.

WHELPTON'S PURIFYING PILLS.

Whelpton's Purifying Pills are supplied by G. Whelpton and Son, London, E.C., at 1s. 1½d. per box containing 60 pills.

They are advertised in the following terms:

Indigestion is the primary cause of most of the ills to which we are subject. Hence a medicine that stimulates the digestive organs will relieve quite a number of complaints. Whelpton's Vegetable Purifying Pills arouse the stomach to action, promote the flow of gastric juice, and give tone to the whole system. Headache flies away. Biliousness, Kidney Disorders, and Skin Complaints disappear, while cheerful spirits and clear complexions follow in due course. . . . The occasional or

regular use of Whelpton's Pills, by assisting Nature to get rid of superfluous matter, relieves the congested condition of skin and kidneys, and speedily restores the natural functions of these important organs. Whelpton's Purifying Pills are thus a direct purifier of the blood. . . . Daily doses of Whelpton's Purifying Pills will arouse the Liver to proper action, and, by removing the cause of obstruction, speedily restore the general health of the body.

These Pills may be taken at any time, but it is generally found most convenient to take them at bed-time. In ordinary cases two will be a sufficient dose, but three or four may sometimes be necessary according to the age and strength of the patient or obstinacy of the complaint.

The pills had an average weight of 2½ grains. Chemical and microscopical examination showed the presence of aloes (apparently Socotrine), powdered colocynth, ginger, and gentian, the last-named ingredient being less positively indicated than the others. No evidence of the presence of mercury or calomel was obtained.

Chas. Forde's Bile Beans.

These "beans," which consist of ovoid, coated pills, are supplied by the Bile Bean Manufacturing Co., London, E.C. A box price 1s. 1½d. was found to contain 30 pills, and a 2s. 9d. box 90.

In a circular enclosed in the package they are described as "absolutely unequalled" for biliousness and other complaints, of which thirty-eight are named, including anaemia, piles, influenza, despondency, blackheads, rheumatism, etc. It is further stated that

Chas. Forde's also cure Fatty and Waxy Degeneration of the Liver, "Hob-nailed" or "Gin-Drinker's" Liver (Cirrhosis), and the host of ailments having a common origin in impaired digestion, assimilation, and secretion, and in defective working of the excretory organs. Chas. Forde's are likewise of inestimable service in all the disorders peculiar to women, while as a general aperient and tonic remedy they are unsurpassed.

Chas. Forde's bile beans do not contain a single particle of Mercury, Bismuth, or other poisonous mineral substance, and are also devoid of Aloes. . . .

As a General Aperient.—Two to four beans as occasion may require.

As a Tonic.—One bean after the midday meal, and one upon going to bed.

The pills were coated with gelatine, the coating being coloured black. The average weight after removal of the coating was 2.3 grains.

The statement that they are devoid of aloes appears to be true only if it is taken to refer to aloes itself and not to preparations of aloes, as tests showed very clear evidence of the presence of aloin; other constituents shown by chemical and microscopical examination were powdered cardamoms, oil of peppermint, and wheat flour; some evidence was obtained of extract of colocynth, but not sufficiently conclusive for its presence to be definitely asserted. No evidence of the presence of mercury or calomel was obtained.

Carter's Little Liver Pills.

These are supplied by Carter Medicine Co., New York; they are largely advertised and sold in Great Britain, and there is a British dépôt in London. A package price 1s. 1½d. was found to contain 42.

They are described on the package as

Purely Vegetable. For Headache. For Dizziness. For Biliousness. For Torpid Liver. For Constipation. For Sallow Skin. For the Complexion,

and in a circular contained in the package as

designed to act upon the Liver and Bile in such a manner as to secure all the benefits of a prompt and active medicine, without any of the unpleasant effects which usually attend the use of ordinary liver remedies.

The pills were sugar-coated, and after removing the coating had an average weight of ⅓ grain. Chemical and microscopical examination gave evidence of the presence of aloes (Barbados) or a preparation of aloes, podophyllin, powdered liquorice root, and wheat starch, the last probably from the coating. No other ingredient could be detected.

Holloway's Pills.

These are supplied by Thomas Holloway, London. A box price 1s. 1½d. was found to contain 49 pills.

It is stated in an advertisement that

They have positively no equal for thoroughly cleansing the system and putting the liver and kidneys in functional order, without pain or griping.

A pamphlet which was wrapped round the box is entitled:

A Key to Health ! ! ! The Hollowayian System of Medicine and its adaptation for the treatment of many Diseases incident to the human frame.

It appears from the pamphlet that "the Hollowayian System of Medicine" might be summed up in the words: Take Holloway's Pills; apply Holloway's Ointment. Among the complaints for which this "system" is prescribed are gout, rheumatism, sciatica, paralysis, liver complaints, asthma, inflammation of the kidneys, bronchitis, quinsy, bad legs, bad breasts, ulcers, wounds, sores, tumours, piles and fistulae, the turn of life, floodings and the whites, obstruction of the menses, dropsies, jaundice, youthful indiscretion, impotency, palpitation of the heart, debility, indigestion, constipation, gravel, stone, venereal diseases, influenza, erysipelas, lepra blotches, scald heads and ringworms, scrofula, ague, diarrhoea, etc. The dose recommended in different cases varies from two pills a day to seven pills night and morning.

The pills had an average weight of 1.4 grain. Chemical and microscopical examination showed the presence of aloes (Barbados), or a preparation of aloes, powdered ginger, and soap. There was no evidence of the presence of mercury or calomel.

Page Woodcock's Wind Pills.

These pills are supplied by Page Woodcock, Ltd., London, N. The price of a box containing 32 pills was 1s. 1½d.

They are thus described in a circular enclosed in the package:

The Most Effectual Medicine Yet Discovered for the Prevention and Cure of Disease. . . .

In all cases of Indigestion, Liver Complaints, Biliousness, Constipation, Palpitation, Debility, Anaemia, Irregularities, Bad Assimilation, Wind in the Stomach and Bowels, Spasms, Heartburn, Giddiness, Disturbed Slumbers, Piles, Toothache, Neuralgia, etc.; they will, if taken in accordance with the following directions, effect a positive and permanent cure in the most stubborn and deep-rooted cases.

The directions in various cases are from three to nine pills to be taken daily.

The pills were pearl-coated, and after removal of the coating had an average weight of 1.6 grain. Chemical and microscopical examination showed the presence of aloes (Barbados) or a preparation of aloes, a little ginger, a little soap, a trace of capsicum, and oils of peppermint and cinnamon; some other vegetable tissue was also present, but it did not possess any characters by which it could be identified. No mercury or calomel was present.

Scott's Pills.

Scott's pills are supplied by W. Lambert, London, in boxes, price 1s. 1½d., containing 24 pills. A circular sent with the pills is headed:

Bilious and Liver Complaints, Indigestion, Costiveness, Loss of Appetite, Worms, Gout, Inflammations, Rheumatism, Lumbago, etc., effectually removed by the use of Dr. Scott's Bilious and Liver Pills. . . . Prepared from the Recipe of Dr. Scott, of Bromley, Kent.

The recommendations for their employment include the following:

The evil effects arising from intemperance will be prevented if recourse is had to them after excess of eating or drinking. Preparatory to Sea or Cold Bathing they are particularly necessary; by taking a Pill or two for a few nights previous, the bowels will be cleansed from any crudities that may adhere to them, and the body rendered in a proper state for the prevention of many uncomfortable complaints. They are also the most excellent alterative and cleanser of sallow complexions, caused by obstructions of the Liver. To seafaring persons they are particularly recommended, as the use of them will prevent many disorders incident to such a life, which frequently prove fatal. Pregnant women will find them a most efficacious medicine in preventing Bilious Vomitings, Nervous Headaches, and other complaints peculiar to their situation. . . .

Mr. Lambert wishes to impress on parents the necessity of administering these Pills to their children; they will find them a most efficacious Medicine for eradicating Worms, Fevers, Coughs, Inflammations, and all disorders of the Stomach and Bowels; the child will be strengthened, saved from all sickness, and the parents themselves much trouble and uneasiness.

The pills had an average weight of 2·4 grains. Chemical and microscopical examination indicated the presence of aloes (Socotrine) in rather small quantity, ginger, rhubarb, and soap. No mercury or calomel was present.

KER NAK.

Ker-Nak, or Ker-Nak Pills, are supplied by a company in Leeds at 1s. 1½d. per package, containing 41 pills. They are thus described in a circular accompanying the package:

Ker-Nak is a natural and valuable remedy which marks an important step in advance of old-fashioned purges and drastic mineral pills. These latter, with their mercury, bismuth, and other crude ingredients, only irritate, inflame, and, in the end, seriously injure, the delicate linings of the stomach and bowels. All such mineral drugs, doubtful in their physiological action and paralysing and harmful in their eventual effect, do not in any way, directly or indirectly, enter into the composition of Ker-Nak, which, on the contrary, contains certain essences and oils, the valuable constituents of fresh ripe fruit, together with valuable vegetable extracts and internal disinfectants reputed for their purity and medicinal worth. . . . The unapproachable excellence of Ker-Nak from a medicinal or healing standpoint, as well as its greater suitability for sickness contracted under present-day conditions . . . renders this *natural* treatment, so invaluable in cases of: Constipation, Headache, Indigestion . . . Sleeplessness, Neuralgia, Palpitation . . . Anaemia, and most Female Ailments (in youth, motherhood, middle-age, and declining years), Piles . . . Hysterics, Shortness of Breath . . . Rheumatic Affections, Influenza, and its after-effects. . . .

The lengthy circular concludes with a paragraph headed:

FREE ADVICE.

Any reader in need of sound advice upon his or her own ailment can have, Free of Cost, the assistance of our fully qualified Medical Staff.

Describe in detail all the symptoms of your illness, say how long the illness has lasted, and what you have been doing for it in the past; and have no hesitation in stating fully any matter which troubles you. The medical staff will tell you frankly and in confidence what is the best treatment for you to adopt.

The directions on the package are:

Dose—1 to 3, or in severe cases, two doses of 2 each, one dose at night and repeat after the next mid-day meal.

The pills were coated with orange-coloured pearl-coating; after removing it they had an average weight of 1½ grain. Chemical and microscopical examination indicated the presence of aloes (Barbados) or a preparation of aloes, a little soap, a very little oleo-resin of capsicum, and a little vegetable tissue which appeared to be marshmallow root (used as an excipient). There was no evidence of the presence of mercury or calomel.

COCKLE'S PILLS.

The present maker's name of these is not given, but they are described in the circulars which accompany them "As Prepared by the late James Cockle, Surgeon and Apothecary, 4, Great Ormond Street, London." A box, price 1s. 1½d, was found to contain 16 pills. It was also stated that:

These pills consist of a careful and peculiar admixture of the best and mildest vegetable aperients, with the pure extract of the flowers of the camomile. They will be found a most efficacious remedy for derangement of the digestive organs, and for obstructions and torpid action of the liver and bowels, which produce Indigestion and the several varieties of Bilious and Liver Complaints . . . these Pills are not recommended as containing any new or dangerously active ingredients; on the contrary, they are characterized by a remarkable simplicity of combination, and whatever merit they may be found to possess depends as much upon the selection of pure drugs and the unusual labour and attention bestowed upon their subsequent preparation, as upon the acknowledged peculiarity of their composition. They are not recommended as a panacea, nor are they adapted to all complaints; but as a mild and efficacious *aperient* and *tonic* in the various forms of Indigestion, with intestinal irregularity admitting their use, it will not, perhaps, be an exaggeration to state that they have been resorted to under all systems of diet, changes of climate, or atmospheric alternations, with an extraordinary degree of success, for a period extending over more than half a century.

The directions vary from "One Pill to be taken an hour before dinner" to "Two or three at any time."

The pills had an average weight of 4 grains. Chemical and microscopical examination indicated the presence of aloes (Socotrine), a little soap, powdered colocynth, powdered jalap, and another vegetable tissue which did not agree in characters with any drug now in ordinary use, and which could not be identified. No evidence of the presence of mercury or calomel was detected.

BURGESS' LION PILLS.

We published some time ago the results of analysis of Burgess' Lion Ointment, and the Pills are a companion medicine. A box, price 1s. 1½d., was found to contain 24 pills. In a circular enclosed in the package it is stated that

The Pills act beneficially by imparting a healthy action to the Liver and Digestive Organs, removing Obstructions and purifying the Blood, completely renovating the health by expelling and preventing the recurrence of disease. When suffering from Headache, Giddiness, Pains in the Back or Loins, Loss of Appetite, or a feeling of General Debility, these Pills will be found most invaluable.

The directions on the label are "Two to be taken at bedtime."

The pills were pearl-coated; after removal of the coating they had an average weight of 4¼ grains. Chemical and microscopical examination indicated the presence of ipecacuanha, rhubarb, a little jalap, probably aloes (Socotrine), and oil of peppermint, and soap. There was no evidence of the presence of mercury or calomel.

HOOD'S VEGETABLE PILLS.

These are supplied by C. I. Hood and Co, Limited, London, in a bottle, price 1s. 1½d., containing 34 pills.

They are described on the package as

The great Liver Invigorator. A mild, efficient cathartic, purely vegetable, unequalled as a family physic and after dinner pill. A valuable remedy for Liver Complaint, Constipation, Nausea, Biliousness, Headache, Indigestion, Sour Stomach, Distress after Eating, Jaundice.

The directions, given in a circular enclosed in the package, are:

For Biliousness, Jaundice, Sick Headache, Constipation, Flatulence, Dizziness, Nausea, and all Liver Troubles, and to Relieve or Prevent Malaria and Influenza. For laxative effect, the usual dose is one, two or three pills taken at bedtime in a draught of water; for purgative effect, from three to six pills, taken in the same way. . . .

For Indigestion, Heartburn, Distress in the Stomach, Fulness after Eating: The usual dose is one pill taken immediately after eating, in a draught of water.

The pills were sugar-coated, and, after removal of the coating, they had an average weight of ½ grain. Chemical and microscopical examination showed the presence of aloes (Barbados) or a preparation of aloes—probably aloin, ginger, capsicum, colocynth, soap, and probably a little jalap. There was no evidence of the presence of mercury or calomel.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

AT the annual general meeting of this society on May 17th, Dr. Blandford, President, in the chair, it was reported that the society consists of one honorary member and 140 life and 153 ordinary members. The invested funds amounted to £100,900, and the income consisted of the interest on this sum, £3,141, together with £352 received in subscriptions and donations. The sum of £3,131 10s. had been distributed among the annuitants of the charity, 48 widows and 13 orphans. The Copeland Fund enabled the society to grant to any widow or orphan already in receipt of the society's ordinary relief extraordinary assistance in special circumstances of unusual distress, such as blindness or grave permanent disease, and to continue such extra relief in the case of orphans beyond the age of 16 or 18 years, at which ordinary relief ceases. Relief is only granted to the widows and orphans of deceased members who have paid their annual subscription for three years or who are life members.

The directors desire to bring to the notice of the members of the medical profession, especially the younger, the advantages of joining the society. Membership is open to any registered practitioner who at the time of his election is resident within a twenty-mile radius from Charing Cross. Should any member remove beyond the limits of the society he nevertheless continues to be a member. The annual subscription is two guineas; every member who has paid this sum for twenty-five years becomes a member for life. Life membership may also be obtained by the payment of one sum, varying with the age of the applicant.

Further particulars and application forms may be obtained from the Secretary at the offices of the society, 11, Chandos Street, Cavendish Square, W.

Nova et Vetera.

SIR JAMES SIMPSON AND ETHER IN MIDWIFERY PRACTICE.

THE name of Sir James Simpson has come to be so closely associated with chloroform that few remember that the famous obstetrician, the centenary of whose birth takes place on June 7th, had anything to do with ether as an anaesthetic. And yet he had much to do with it. When in January, 1847, he introduced the use of anaesthesia into midwifery practice ether was the anaesthetic he employed, and he continued to administer ether until the November of the same year, when he was led, for various reasons, to prefer chloroform, and to substitute it for ether. That these facts have been overlooked is evident from a reference to recent works on midwifery published in this country (where such facts certainly ought to be known) and in other lands. Thus one writer[1] has this sentence:

> Since the introduction by Sir James Y. Simpson of anaesthesia by chloroform in midwifery the pain can always be kept within reasonable limits.

And other authors are evidently unaware that the use of ether in midwifery practice in Great Britain antedated its employment for the same purpose in America. Whitridge Williams, however, gives the facts clearly and consisely in his work on *Obstetrics*[2] in the following words:

> We are indebted to Sir James Y. Simpson, the discoverer of chloroform, for the introduction of anaesthesia into obstetrical practice. He employed ether for this purpose in the year 1847, and replaced it by chloroform after the discovery of the latter drug.

Even Whitridge Williams does not give the exact relationship of Sir James to chloroform, for the Edinburgh obstetrician discovered not chloroform but the anaesthetic power of chloroform; but he is correct in his reference to ether, although the statement he makes is very condensed. Other American obstetricians, however, would seem to be unaware of the facts, for in conversation recently with a distinguished teacher of gynaecology, and a writer of well-known books on the subject, we elicited the admission that the facts above referred to were quite unknown to him. It may, therefore, be not unprofitable to restate these facts with some little fullness.

It was on January 19th, 1847, that Sir James Simpson took the step which has had such far-reaching effects in midwifery practice, and the *Monthly Journal of Medical Science* for February[3] recorded the fact on its last page in a somewhat obscure way, under the not very inviting heading, "Medical News." The paragraph is entitled, "On Etherization as a Means of Procuring Insensibility to Pain," and it commences with the following sentence:

> As we closed our last number we had no more than time to announce in a few words the discovery of a method of rendering patients insensible to the pain of surgical operations and the like. Since then the periodical press, medical and public, has so trumpeted forth this discovery that it is impossible it should have failed to reach the ears of any one of our readers.

Then follow some notes on the use of ether in surgical work in London, Dublin, and Edinburgh, and on its employment in dental practice. The article then proceeds:

> The authors of the discovery are said to be Drs. C. T. Jackson and Morton of Boston. They (or someone else who professes to have to do with the discovery) intend to take out a patent both in America and Europe. . . . The idea of a patent is ridiculous, but the inventor deserves to be rewarded, if he be not content with fame, by means of a public contribution.

Then comes the paragraph regarding Simpson, which most concerns us at present. It is as follows:

> As we go to press we have received the following account of the successful use of this wonderful agent in Professor Simpson's practice. On the 19th of last month Professor Simpson tested the effects of the ether inhalation in a case presenting one of the most painful and difficult forms of parturition. The patient was lame and deformed, from disease of the hip-joint in early life; and the promontory of the sacrum could be felt projecting so far forwards as to diminish the conjugate diameter of the brim of the pelvis to about 2¼ in.

After telling of the craniotomy which had to be performed at the first confinement, the account goes on to record:

> On the present occasion (her second labour) the umbilical cord was found presenting, with the head lodged high upon the brim, where it remained without making the slightest progress for several hours or offering at all to pass down into the pelvic cavity. Dr. Simpson had, upon the results of some previous cases of a similar kind, resolved to avoid, if possible, the use of the crotchet or other instruments, and to extract the child by turning. He effected this by grasping easily one knee; but after the body and extremities were born extreme exertion was subsequently necessary to extract the head. . . . The child gasped several times after birth, but respiration could not be established. Some time before the turning was attempted the woman was fully placed under the influence of sulphuric ether. During the whole operation she was (according to her own subsequent reiterated declaration and surprise), quite unaware of feeling any pain, or having any sensation whatever, and awoke just as the delivery was being terminated. . . After she was brought under the influence of the ether the uterine contractions continued regularly, but without knowledge or consciousness of pain on the patient's part. She is making the best possible recovery. Dr. Zeigler, Dr. Keith, and Mr. Figg were present throughout the progress of the case.

The paragraph ends with the editorial remark:

> We are not aware that the ether has ever been previously employed in the practice of midwifery.

In this modest fashion appeared the notice of the introduction of anaesthesia into that branch of medical practice in which it may be said with some assurance it has proved most beneficial and has been least attended with risk. With still less formality or display did it appear in the abstract of the proceedings of the Edinburgh Obstetrical Society:

> On the evening of Wednesday, January 20th, 1847—Dr. Simpson, President, in the Chair. After the Society had agreed that in future regular abstracts of its proceedings should be published in the *Monthly Journal of Medical Science*, Dr. Simpson related a case of turning under the influence of sulphuric ether, and proposed substitution of turning for craniotomy in cases of detention of the child's head at the brim of the pelvis.

Further:

> Dr. Simpson showed the child which he had on the preceding evening extracted by turning while the mother was insensible from the use of sulphuric ether.

Then, as if these two advances—anaesthesia in midwifery and turning in place of craniotomy—were not enough for one evening, Dr. Simpson also showed several instruments, such as pessaries, etc., which he had made of gutta-percha, and how easily and speedily they could be fashioned, by dipping them in boiling water, to suit any particular case. It was truly a memorable meeting of the Edinburgh Obstetrical Society.

A few weeks later, in the month of March, Professor Simpson himself published a full account of the case of version above referred to and added notes of several other cases, one of which was a forceps delivery at the Royal Maternity Hospital on February 3rd, and another was a similar labour in private practice on February 12th; in both these cases and in two others of non-instrumental labour on February 13th ether was administered with complete success, the women being quite insensible to the pains of parturition. Professor Simpson's article is dated February 18th. The following extract from the *Monthly Journal of Medical Science*, vol. vii, 1847, p. 721, shows clearly that Simpson was by no means hasty in forming his judgement of the suitability of ether for the purposes for which he had employed it. He wrote:

> A careful collection of cautious and accurate observations will no doubt be required before the inhalation of sulphuric ether is adopted to any great extent in the practice of midwifery. It will be necessary to ascertain its precise effects, both upon the action of the uterus and of the assistant abdominal muscles; its influence, if any, upon the child; whether it gives a tendency to haemorrhage or other complications; the contraindications peculiar to its use; the most certain modes of exhibiting it; the length of time it may be employed, etc. In no case have I observed any harm whatever, to either mother or infant, follow upon its employment. And, on the other hand, I have the strongest assurance and conviction that I have already seen no small amount of maternal suffering and agony saved by its application. The cases I have detailed sufficiently show its value and safety in operative midwifery. . . . Granting that experience will yet be able to prove its safety and efficacy in

[1] Westland, *The Wife and Mother*, p. 62, 1910.
[2] Whitridge Williams, *Obstetrics*, 2nd edit, p. 321, 1908.
[3] *Monthly Journal of Medical Science*, vol. vii, p. 639, 1847.

modifying and annulling the pains of labour, will (I have repeatedly heard the question asked) the state of etherization ever come to be generally employed with the simple object of assuaging the pains of natural parturition? Or (as the problem has not unfrequently been put to me), should we be "justified" in using it for such a purpose?

In a few paragraphs containing much that he was afterwards to expand into more complete propositions, Professor Simpson sketched the argument for affording relief from pain to parturient women, and he ended with the statement:

> Instead of determining . . . whether we shall be "justified" in using this agent under the circumstances named, it will become, on the other hand, necessary to determine whether on any grounds, moral or medical, a professional man could deem himself "justified" in withholding, and not *using* any such safe means, as we at present presuppose this to be.

It is, to say the least, remarkable that Simpson should, within a month of his first use of an anaesthetic in midwifery, have so logically foreseen the possible objections to, and risks in, the administering of ether in labour, and have so clearly estimated the probable extension of its employment to cases of natural labour. As we have said, it was not till November 4th, 1847, that Simpson, with Keith and Matthews Duncan, discovered the anaesthetic properties of chloroform, and began to use it in place of ether as more potent, portable, and pleasant; and during the intervening months he was steadily employing ether himself and recommending it to others, as he himself stated in his paper read before the Medico-Chirurgical Society of Edinburgh in December, 1847.

Professor Simpson's first case of etherization in midwifery seems to have been made known also through the public journals, and on January 26th an unsuccessful attempt was made in St. Bartholomew's Hospital, London, to etherize a patient upon whom Caesarean section was about to be performed. About the same time—that is, about a week after its use in Edinburgh—Fournier Deschamps employed it in a forceps delivery in Paris (January 27th), and Dubois gave it in a similar case on February 8th. On February 13th Dr. Murphy of London stated that he had used ether in a case of turning. In Germany the first case seems to have been that under Professor Martin of Jena on February 24th; it was an instance of adherent placenta. In America Dr. Channing, Professor of Midwifery in Harvard University, employed ether in a forceps case on May 5th; and the first patient delivered under an anaesthetic in Ireland was a woman under the care of Dr. Tyler of Dublin on November 28th, a forceps case. These are the facts regarding priority as published by Simpson in October, 1848.[1]

It must not be forgotten, further, that it was in defence of ether, not in the first place of chloroform, that Sir James Simpson constructed those logical, pungent, and humorous arguments which did so much to place anaesthesia in midwifery practice on a sure and sound basis.

THE PLAGUE.

PREVALENCE OF THE DISEASE.

MAURITIUS.

FROM January 1st to March 31st, 1911, there have been reported in Mauritius 121 cases of plague and 82 deaths from the disease. During January the cases numbered 95, deaths 65; during February cases 21, deaths 13; during March cases 5, deaths 4.

During the first three weeks of April there were 7 cases and 4 deaths from plague.

INDO-CHINA.

A case of plague occurred in Saigon during the first week of January.

SOUTH AMERICA.

Brazil.—In Bahia between November 27th and December 16th, 1910, the cases of plague numbered 19 and the deaths from the disease 15.

Ecuador.—During the first two weeks of January plague was present in Duran, Guayaquil, and Milagro. In these districts the fresh cases numbered 31 and the deaths from the disease 12.

Peru.—At Salaverry plague was stated to be epidemic on March 1st, 1911.

RUSSIA.

Astrakan.—Between January 8th and 29th, 1911, 29 cases of plague and 20 deaths from the disease were reported in the Kirghiz Steppe.

[1] *Monthly Journ. Med. Sci.*, p. 209, October, 1848.

MOTOR CARS FOR MEDICAL MEN.

APPLIANCES AGAINST PUNCTURE.

TWO forms of protecting band designed to guard against punctures and to enable much-worn tyres to be used up without the inconveniences usually attendant upon trusting to old tyres have been lately brought prominently before the public. Both are placed between the air tube and the cover, and both are secured to the inner surface of the cover by india-rubber solution, though only partially, the part which underlies the tread being left free.

The one called the Victor shield consists of several layers of strong canvas vulcanized together, and thickest over the tread. The special peculiarity of the Victor shield is that it is continued outwards by a comparatively thin flexible edging which goes completely over the bead and is carried up a short distance outside the cover. It is attached by fixing with solution a small portion inside the cover, and also that portion which covers the bead and goes up on the outside, so that it not only strengthens the inside of the tyre, but also reinforces the bead and its immediate neighbourhood—a matter of some importance, as old tyres are often defective in this region. The makers of this band, the Challenge Mills, 218, Shaftesbury Avenue, have for some time sold a well-made liner of somewhat similar character, but this did not pass over the bead and on to the outside of the tyre, so that the Victor shield is an improvement upon a tried form of reinforcement. The makers claim that the shield can be readily removed with the aid of a little petrol, and will outlast several covers. The price of the Victor shield for an 810 × 90 cover is £1 10s., and the makers do not charge anything for putting it in a cover. They guarantee it for a considerable distance, and repair it free of charge unless the repair needed is such as to require the insertion of a new section.

The other appliance is the Atlas puncture-proof inner case, which attracted some little attention at recent motor shows. It is of novel construction, consisting of rubber in which are imbedded a large number of thin steel discs arranged in three layers in such fashion that they overlap one another to a large extent; outside this are three layers of canvas; as a preventive of puncture it can hardly fail to be efficacious. It intervenes between the air tube and the cover, and in order to prevent creeping is fixed by solution to the latter along each of its edges, the portion corresponding to the tread being left free. It can be easily removed by petrol and placed in another cover. The Atlas case has been lately subjected to a trial by the *Autocar* newspaper in an old Dunlop cover which had already run 10,000 miles; with the aid of the Atlas shield it ran another 500 miles, by which time the inner shield was considerably exposed, and further trial would have damaged it. No exceptional heating of the tyre was observed after a long fast run. The price of the Atlas inner case for 810 × 90 tyres is £3 12s. 6d., and it can be seen at 124, High Street, Kensington. The agents print some testimonials to its efficiency, and it is possible that a competitive trial under independent observation may be arranged between these two forms of tyre strengtheners.

AN OLD SUBSCRIBER asks for the names of any firms in London from whom he could hire a motor at a reasonable rate. He says he is able to hire a hansom at 3s. 6d. per hour, and finds it impossible to hire a motor for less than 8s. for the same time. There must be, he says, many doctors willing to pay £150 a year for not more than two and a half hours a day, and he considers there is a lucrative opening for the supply of small motor cars to medical practitioners.

*** We are sorry that we cannot supply the name of a firm who would supply a car upon the terms you suggest. Up to the present hiring a car has not been an economical method of commanding the use of one, and when one is let for part of its time only the charges are always high. There are many firms who undertake to run and keep in repair, supply tyres, chauffeur, etc., for a person's own car, and on tolerably reasonable terms, but this arrangement, whilst saving trouble and securing the use of another car should the one be disabled, is not particularly economical.

B.—The prices of Ford motor cars are unquestionably low for their horse power, and some users of them have spoken well of them. They have not the high finish in their visible parts which may be found in more expensive cars, and we have no personal experience of their durability, though they have come through tolerably severe trials with success.

MOTOR CYCLES.

CYCLE asks for particulars as to the suitability and reliability of motor cycles for general practice on fairly bad Irish roads and with regard to the cost of upkeep. He also wishes to know the special points to attend to in selecting a machine.

LITERARY NOTES.

MR. BLAND-SUTTON'S well-known book, *Gallstones and Diseases of the Bile Ducts*, has been translated into German by Oskar Kraus of Carlsbad. The translation, which has been made from the second edition, appears under the title *Gallensteine und Erkrankungen der Gallengänge*, and is published by Franz Deuticke, of Leipzig and Vienna.

In Dr. Grasset's recently published book entitled *La Médecine Naturiste à travers les siècles* there is an account of Boileau's experiences at Bourbon l'Archambault, a health resort famous in his day. The great critic, then 50 years of age, had suffered for a considerable time from loss of voice and difficulty in breathing. He was assured that as soon as he had drunk the waters of the spring he would be restored to health and his youth would be renewed. Among the oracles of medicine of whom he sought counsel were Daquin and Fagon, physicians to Louis XIV, who while agreeing that the waters of Bourbon would cure him intrigued against each other behind his back. Daquin had recommended one local doctor, Fagon another. This led to unpleasantness. Boileau's letters while he was undergoing his "cure" give an interesting glimpse of the treatment of the day. In a letter addressed to Racine on July 26th, 1667, he says:

> I have been bled, purged, etc.; no part of the ritual said to be necessary before taking the waters has been omitted. The medicine I have taken to-day has, they say, done me all the good in the world; for it has brought me near to fainting four or five times, and has reduced me to such a state that I can hardly stand upright. To-morrow comes the great masterpiece of healing, which means I begin to take the waters.

On the 29th he writes further in an ironical spirit:

> Up to the present the waters have done me much good as I pass them forthwith and they have, so to speak, made everything come out of my body except the disease for which I take them. M. Bourdier, my doctor, nevertheless maintains that my voice is stronger than it was when I arrived, and M. Boudière, my apothecary, who is a still better judge than he since he is deaf, says the same thing.

On the 31st, writing to his sister, he expresses discouragement, telling her that the waters, which he had then been taking for ten days, had caused great weariness in the legs, had made him drowsy, and produced other effects which had pleased the doctors though they had brought little comfort to the patient, who was still voiceless, had little appetite, and was very weak. He intends, however, to persevere, and if he does not get well at any rate no one will be able to say that he has not done all that he should have done to get cured. On August 13th Racine writes that he had consulted Fagon as to his friend's condition, and that luminary had recommended that he should leave Bourbon l'Archambault at once. Even the King condescended to give his sapient opinion on the case. "He will do better," said the monarch, who believed little in medicine, though—or perhaps because—he was himself always in the hands of the doctors, "to go back to his customary mode of life; his voice will come back to him when he is least thinking about it." In defiance of the opinion of Bourdier, Boileau was persuaded by another doctor to try the effect of bathing. The effect was marvellous. His voice returned, but only for the time. After taking some ten baths, Boileau says that although he is stronger and breathes more easily, he is as voiceless as before. Louis XIV's prognosis proved correct. Six months later Boileau unexpectedly recovered his voice. Of health resorts and the patients who go to them, it might be said with as much truth as of Governments, *Plus ça change plus c'est la même chose.*

Any one who has ever been in France, even for a short time, cannot fail to have been struck by the great demand there is in that country for Englishwomen as children's nurses, and by the complete confidence displayed by French mothers in their knowledge of all matters appertaining to the nursery. But it may not be so generally realized that this flattering belief in the efficiency of Englishwomen is by no means of recent growth, or due to the modern methods of training in nursery colleges and other establishments of the same kind, but appears to have been rooted in the Gallic mind for generations past. An article by Madame Augusta Moll-Weiss on the proper clothing of young children, which appeared in the April number of *L'Hygiène*, proves that during the reign of Louis XIV at least one famous Frenchwoman regarded her sisters across the Channel as more advanced in the science of child-rearing than the women of her own country. A letter from Madame de Maintenon, that most practical of women, is quoted by Madame Moll-Weiss, in which the great court lady wails bitterly against the then universal habit of swaddling babies, and praises the English custom of changing the child's linen immediately it became soiled, instead (as was usual in France) of leaving the poor little creature for an indefinite period tightly swathed in bandages whose cleanliness naturally left much to be desired. It should be added that the wife of Louis XIV was by no means the only one to proclaim aloud the evils of the "*emmaillotement*" which has been denounced over a century before by Montaigne; with very little effect, however, since we find François Mauriceau, in his book *Les maladies des femmes grosses et accouchées*, recommending swaddling as the most effective method of procuring for the child a good figure, and teaching him "to stand upon his two feet; for otherwise he would perhaps walk on all fours, like the majority of animals." Another interesting article in the same number of *L'Hygiène* is by Dr. A. Kermorgant, on the subject of yellow fever; whilst M. Paul Juillerat and Dr. L. H. Debayle have respectively contributed accounts of the unwholesome houses of Paris and the principal intestinal parasites in the tropics. Dr. Maurice de Fleury writes on the causes and prevention of insomnia. The illustrations of this most attractive magazine, as usual, deserve the highest praise.

One is accustomed to imagine that the report of a year's proceedings of any learned society must necessarily be something in the nature of a Blue Book, as uninteresting as it is instructive; but that this is not invariably the case is proved by the annual report of the Viking Club (published every year under the title of *The Saga Book of the Viking Club*), the first part of the seventh volume of which has recently made its appearance. This account of the eighteenth session of the Society for Northern Research is embodied in a most interesting and attractive periodical, beautifully printed and illustrated, which contains a summary of the meetings held by the members of the club during the past year, together with reprints of several papers read on these occasions. Those who are interested in the history of the various Norse invasions, and the extent of the Danish and Norwegian conquests in this country, will do well to study Mr. Robert L. Bremner's "Notes on the Battle of Largs," and Professor Allen Mawer's masterly account of "The Scandinavian Kingdom of Northumbria"; whilst those to whom the human side of these terrible sea kings appeals more strongly than the recital of "old, unhappy far-off things and battles long ago," will find a fund of information in such articles as Dr. Harry Fett's "Miniatures from Icelandic Manuscripts," or Mr. J. Storer Clouston's exposition of social and political conditions in Orkney under Norwegian rule. Nor is the more spiritual side of the Viking's life neglected, for an interesting article by Professor Finnur Jónsson and Captain Daniel Bruun on "Finds and Excavations of Heathen Temples in Iceland" contains a vivid description of the ceremonials connected with the worship of the ancient gods; and some old superstitions are mentioned by Mr. Edward Lowett in his lecture on "The Folklore of the Horse," from which we learn that the brass head ornaments worn by the cart-horses of to-day are the modern equivalents for the charm once carried by every horse as a protection against the Evil Eye. Some striking passages from Mr. Eiríkr Magnússon's translation of "Kung Fialar," an epic poem by Johan Ludvig Runeberg, the great national poet of Finland, are also included in the present number of *The Saga Book*, the interest and variety of whose contents compare very favourably indeed with those of many of its more widely known contemporaries.

Dr. David Rorie, of Cults, near Aberdeen, writes that he found the following lines in looking over a collection of single sheets belonging to the early part of the eighteenth century in St. Mary's College, Blairs. With the kind

permission of the rector, Monsignor McGregor, he got a copy of them, which he has been good enough to send us:

AN ACCOUNT
OF THE
DOCTOR AND HIS PATIENTS.

There was a prudent grave Physician,
Careful of Patients as you'd wish one;
Much Good he did with Purge and Glister,
And well he knew to raise a Blister;
Many he cur'd, and more he wou'd,
By Vomit, Flux, and letting Blood;
But still his Patients came again,
And most of their old Ills complain;
The Drunkards drank, and spoil'd their Liver;
Beaux ply'd the Smock as much as ever,
And got the high Venereal Feaver;
The Glutton cram'd at Noon and Supper,
And doubled both his Paunch and Crupper.
One Day he called them all together,
And one by one, he ask't 'em whether
It were not better by good Diet,
To keep their Blood and Humours quiet;
With Toast and Ale to cool their Brains,
Than nightly fire them with CHAMPAINS;
To sup sometimes on Water grewel,
Than drink themselves into a Duel;
To change their lewd, for sober Life,
And rotten Whore, for sounder Wife?
They all agreed that his advice
Was honest, wholsom, grave and wise;
But not one Man, wou'd quit his Vice;
For after all his vain Attacks,
They rose and din'd at PONTACK'S.

The MORAL.

The wise may preach, and Satyrists rail,
Custom and Nature will prevail.

"Pontack's" was a famous tavern in the days of Queen Anne. It was situated in Abchurch Lane. A writer in *T.P.'s Weekly* says it was erected on the site of the White Bear Tavern, destroyed in the Great Fire of 1666. M. Pontack, the son of the President of Bordeaux, owner of a famous claret district, established his tavern with all the novelties of French cookery, with his father's head as a sign, whence it was popularly called Pontack's Head. The dinners were from four or five shillings a head "to a guinea, or what sum you pleased." Swift frequented the place, and writes to Stella: "Pontack told us, although his wine was so good, he sold it cheaper than others; he took but seven shillings a flask. Are not these pretty rates?" The Fellows of the Royal Society dined at Pontack's until 1746, when they removed to the Devil Tavern in Fleet Street. In a rare tract (1731), called *Metamorphoses of the Town*, we learn of Pontack's "guinea ordinary" including "ragout of fatted snails," and "chickens not two hours from the shell."

On May 1st a lecture was delivered at the Archaeological Museum, under the auspices of the Cambridge Antiquarian Society, by Dr. Palmer on early Cambridge doctors. The following is an abstract of a report of the lecture published in the *Cambridge Weekly News*. Dr. Palmer said it was his object to describe how the physicians and surgeons of Cambridge furnished their houses, what books they read, what drugs they used, what clothes they wore, and what money they saved. Under certain early Acts the regulation of medical practice was in the hands of bishops, so that the records of the Bishopric of Ely seemed to offer him a fine field. In this way he found that John Papworth, of Duxford St. John, was licensed as a surgeon in 1584, he being the second earliest country surgeon of whom he had found a record. Dr. Palmer went on to speak of Bishop Wren, who, amongst other things, issued a set of questions for the clergy and churchwardens of his parish to answer, including a chapter headed "Concerning schoolmasters, physicians, chirurgeons, midwives, parish clerks, and sextons." A search through the Bishop's Court Books resulted in the discovery that in 1640 fifteen medical practitioners were licensed; four in Cambridge, and the others at Brinkley, Chatteris, Chesterton, Coton, Cottenham, Ely, Ickleton, Melbourn, Meldreth, Shudy Camps, and Wisbech. From other sources it was found that March and Whittlesey each had also a doctor at this time. The regulations in Cambridge differed from those in the county. Every physician or surgeon had to be approved by the University. They had the advantage of being under the jurisdiction of the Vice-Chancellor, and had certain privileges. Some of the wills of these doctors being proved in the Vice-Chancellor's Court were available, and revealed some interesting matter. The grades of the practitioners were: physicians, surgeons, barber-surgeons, apothecaries, bonesetters, and midwives. The first four had degrees, were licensed, or had served apprenticeships. There were indications that the status of the surgeon of 1540 was higher than that of his successor a century later. In 1600 the apothecaries of Cambridge were a wealthier class than the surgeons. Most early Cambridge doctors probably had one or more apprentices. Even Dr. Collins, the Regius Professor of Physic, had one, and bequeathed to him a "grey coat and an old shirt and various books." Ten years was the period of apprenticeship. The lowest grade of medical practitioner was the bonesetter, and these men certainly flourished in Cambridgeshire 200 years ago. Although traces of surgeons went back as far as the time of the Roman invasion, practitioners were few and far between in the country, even in the seventeenth century. The poorer classes had to rely upon amateur surgeons, many of whom were people of the higher classes. At the end of the seventeenth century there was a doctor practising at West Wratting who seemed to have gone as far as Linton for his patients. In 1684 the overseers paid him £5 for curing a man of dropsy. In describing this doctor's home, Dr. Palmer said that there was a large quantity of linen. It seemed to be always so and spoke well for the cleanliness of the profession. Cole (whose MSS. are in the British Museum) was on intimate terms with the eccentric Dr. Glyn, of Cambridge, and in 1779 made this note: "Being ill with St. Anthony's fire eruption about my shoulders and gouty humours flying about me, I sent to Dr. Glyn for advice." The medicine ordered was a teaspoonful of cinchona bark in a large tumbler of chamomile tea, twice a day, a very nauseous draught. Dr. Palmer also mentioned a number of other local surgeons, giving lists of their drugs, instruments, and household belongings. An early Cambridge physician who became eminent and fashionable was Walter Lemster, who took his degree of Bachelor of Medicine in 1466. The Bishop of Ely was amongst his patients, and after the Bishop's death he received a life pension. He removed to London and became physician to Henry Tudor. In 1470 Dr. Lemster was induced to house and keep the betrothed of a Doctor of Civil Law for two years while he was away at Padua. On his return the money was to be paid. Dr. Lemster heard no more of him for ten years, when he went to law to recover the money. The cost of keeping the girl and her maid for ten years was £86. The "grievous trouble" the doctor was put to he assessed at £300, but he only estimated the damage done to the girl's broken heart at £13 13s. 4d.! The first doctor practising in Cambridge who seemed to live in almost princely style was John Hatcher. "Probably," said Dr. Palmer, "there is no other town of the size in England, with the exception of Oxford, where so many medical practitioners have been able to amass fortunes. This university town always seems to have attracted doctors with good brains and with good manners, or perhaps with both—we are sure that it is with both at the present time." Hatcher took his degree in 1542. Dr. Palmer described the luxury of Dr. Hatcher's house from a 16-foot inventory! In speaking of fees, he said it was customary for those in a high station to pay their doctors a salary, but others probably paid by bill. The overseers used to defray doctors' expenses in cases of the very poor. In November, 1804, the then Bishop of Ely took twelve bottles of a certain Mr. Muriel's medicine at 4s. 6d. per bottle. In May, 1807, he took twenty-two bottles at 5s. each, and he died early the next year! Dr. Palmer passed on to describe the instruments of early local doctors, which were few and sometimes quaint, and also to detail their libraries. Speaking of how doctors travelled, he said that in the country they could only get round by riding a horse across country.

We have received the remaining fourteen volumes (Ita-Kys to Vet-Zym) of the new edition of the *Encyclopaedia Britannica*. The Index is published in a separate volume on thick paper and in special binding to meet the requirements of a large number of subscribers. The *Index* volume can also be had on India paper. There is no alteration in the price, which includes the entire set of twenty-nine volumes, whatever may be the form of the *Index* selected by the purchaser.

British Medical Journal.

SATURDAY, JUNE 3RD, 1911.

THE NATIONAL INSURANCE BILL.

THE Special Meeting of the Representative Body of the British Medical Association, summoned mainly for the consideration of the National Insurance Bill assembled at the Examination Hall on the Victoria Embankment, London, on Wednesday morning. It was attended by the elected Representatives of the Divisions of the Association in all parts of Great Britain and Ireland. The report of the decisions at which it arrives down to the time of going to press on Thursday will be found in the SUPPLEMENT to this issue. A report of the discussions through which the decisions were reached is not at present available.

The SUPPLEMENT contains also a report on the debates on the bill in the General Medical Council, together with the text of the *Report* of that body, a copy of which was sent to the Chancellor of the Exchequer on Monday before he spoke that afternoon in the course of the Second Reading Debate in the House of Commons; and also a report of that debate, containing the official verbatim report of those parts of Mr. Lloyd George's speech in which he dealt with and defended the medical aspects of the scheme embodied in the bill.

In the SUPPLEMENT will be found also reports of numerous meetings of medical men held in various parts of the country to express their opinions on the provisions of the bill affecting medical interests, including the remarkable meetings in Manchester and Edinburgh. A very large number of letters has been received criticizing various provisions of the bill, and expressing the determination of the writers to combine with their fellows to resist the injustice to which the medical profession will be subjected if the bill is passed without drastic amendments of the medical provisions. Selections from these letters are published in the SUPPLEMENT.

SEASIDE SANATORIUMS FOR CHILDREN.

THE annual migration of children to the seaside during the summer months has become so well-rooted a custom with the great middle class in this country that it is difficult to realize the fact that the benefits of seaside life were little recognized during the childhood of our immediate forbears.

Although recommended by authorities from the earliest days of medical knowledge as beneficial in cases of glandular enlargement, the curative properties of coast climates were never systematically utilized until the suggestion was made by John Coakley Lettsom that a hospital might be founded at Margate to undertake the systematic treatment by sea-bathing of "the scrofulous poor of London and of all England." The hospital was duly built and was opened by Dr. Lettsom himself in the year 1796. The results that have been obtained within its walls have provided an object lesson which has led to the establishment of many such institutions in England and upon the Continent. Doubtless, also, to it may be traced the vogue for the seaside as a holiday health resort for children of all types and the existence of so many large coast towns which have risen up for their accommodation.

The widespread interest aroused by the international crusade against tuberculosis brings into prominence the question of dealing with the disease by preventive measures in early life. In children the disease usually enters by way of the alimentary canal rather than by way of the air passages. The lymphatic system is particularly prone to take up the poison and to retain it in the glands. The joints also are liable to become early affected, but in either case the course of the disease is usually slow, and even when bronchial glands become the seat of tuberculous infection the lungs themselves seem to be inapt at first to harbour the disease. Hence the importance of overcoming the activity of the infection while it is still limited to tissues in which it remains comparatively dormant.

The opinion has often been expressed that this form of tuberculosis must be of the bovine rather than of the human type, but, however this may be, abundant evidence has shown that neglected disease in joints or glands may lead to tuberculosis of the lungs, whereas the early treatment of it may entirely suppress any future activity. The importance, then, of dealing with the earliest manifestations of tubercle in children is now well recognized, and an interesting descriptive account of the existing English and Continental seaside sanatoriums for children has recently been published by Dr. Häberlin,[1] of Wyk, a town in the island of Föhr, off the coast of Schleswig Holstein, in which a large coast sanatorium for children has for some time been open. In this work will be found a reference, with more or less detail in each case, to all the recognized establishments of the same kind in Europe, together with a careful summary, occasionally tabulated, of the results obtained in some of them.

Like some other observers, Häberlin does not find that seaside life has very much influence upon the quality of the blood apart from the general improvement in cellular and haemoglobin content which would naturally follow upon abundance of good food and fresh air in those not accustomed to them. Upon the lymphatic system, on the other hand, seaside treatment shows very marked effects, especially in cases of superficial gland infection, whether open to surgical interference or not. Tuberculous infiltration of bronchial glands and tuberculous disease of the peritoneum, although demanding much longer duration of treatment, seem to have been dealt with more successfully than in the wards of inland hospitals. A still more serious and crippling class of case—namely, tuberculous disease of joints—has been treated with signal benefit at the seaside, with or without operation, absolute cure being frequently noted.

To check the progress of tubercle at its onset and gradually to convert the weakly, pale, and strumous child into a well-knit and healthy youngster and to set him on the road towards robust manhood, is to do the State some service. To neglect such cases

[1] *Die Kinder Seehospize und die Tuberkulose-Bekämpfung Arzt der Seehospize auf Föhr.* Mit einem Vorwort von Geheimrat Ewald, Berlin. By Dr. Häberlin. Leipzig: Dr. D. Werner Klinkardt. 1911. (Roy. 8vo, pp. 338. M. 6.)

and knowingly to permit the seed of consumption to sap the vigour of youth without making any effort to stop it seems almost a national crime. The establishment of sanatoriums for adults has done much to educate the consumptive patient how to treat himself, but in too many cases the knowledge comes too late, and the opportunity offered in earlier years has been lost. It was an English physician, Dr. Richard Russell, who, in the middle of the eighteenth century first noted the absence of scrofulous affections amongst coast dwellers and fisher folk, and his early observation doubtless inspired Dr. Lettsom to utilize sea water and sea air for the relief of scrofulous disease. There are many institutions scattered round the coasts of England where his ideas are put into successful practice, but much more remains to be done. School inspection affords the means whereby the earliest traces of tuberculous infection can be detected, but thus far the efforts of successive tuberculosis congresses have been directed toward the protection of school children from infection rather than toward the treatment of those already infected, or known to have been exposed to infection, by means of national seaside sanatoriums. Much money has been spent upon sanatoriums for adults, but the results, except in very early cases, have not realized early expectations. The success which has been achieved in the seaside sanatoriums, on the other hand, fully warrants the extension of the system in the case of children, with a view to the reduction of the number of consumptives who become a burden to themselves and to the community, owing to the neglect which has failed to stamp out the seeds of the disease in earlier life.

SECONDARY SCHOOLS AND MEDICAL SCHOOLS.

THE correspondence upon the subject of the recognition of the teaching of physics, chemistry, and biology at secondary schools contained in the educational supplement of the *Times* for March, upon which we commented in a leading article on April 15th, has been followed by some letters presenting the other side of the question, and contending that it is not desirable to relegate the teaching of these subjects to the period of school life, but that the medical schools and the universities should be left in possession of them. Simultaneously with these letters, which emanated from the universities of Glasgow and Liverpool, appears a counterblast from the pen of Sir E. Ray Lankester, who suggests that the medical schools are eager to get hold of the student at an early period of his career in order to secure him for the whole curriculum, and that this is not in the interests of the individual student nor of education in general.

The other letters give various reasons why the General Medical Council should maintain its present attitude, and not give recognition to teaching at secondary schools, but some of the arguments adduced appear to cut both ways. Thus Mr. Monsarrat, the Dean of the Medical Faculty at Liverpool, whilst advocating that the teaching of these subjects should be directed towards their ulterior applications in medical science, admits that at present the university teachers have to spend the greater part of the first year in instilling purely elementary knowledge, owing to the ignorance of the students, and that their whole intention is hampered by the fact that boys come from school to the university in absolute ignorance of chemistry. Hence only a low standard can be expected at the end of the first year and at the first M.B. examination. The remedy which he proposes is that the General Medical Council should insist upon an elementary knowledge of the subjects at their entrance examinations and before registration of students. Surely this is tantamount to admitting that the elementary knowledge can and should be obtained at secondary schools, and further that the special direction cannot be given until this elementary stage is passed. In fact, his proposal would only differ in any material respect from one that the Council should recognize the teaching of the subjects at secondary schools were it feasible to require from candidates at an early stage in their career something much more than an elementary knowledge. It appears to us, however, that the whole present issue is centred round the question of elementary knowledge, and that the more advanced knowledge, so far as it can be expected of the average man, can be taught in association with its application to physiology, pathology, medicine, and surgery.

The other letter, signed by Professors Bower and Graham Kerr, of Glasgow University, takes a somewhat different line, emphasizing a distinction to be drawn between what is appropriate for "universities and certain bodies not universities," or, as we may put it, between those qualifying bodies which teach and those which do not. They appear ready to accept secondary school teaching as adequate for the purposes of a qualification through "certain bodies not universities," but not as adequate for universities. This is not quite complimentary, and we suspect that some at least of the "certain bodies" would not be disposed to admit the implied inferiority of their educational requirements and of the tests which they apply. But in any case, if the views of the professors be adopted, the matter is thereby removed from the purview of the Council, which is only directly concerned with the conditions of the minimal adequate qualification; the higher qualifications, which the Council has every desire to encourage so far as its powers go, being after all in the hands of the licensing bodies themselves. Another issue is raised in the letter of the two professors, who draw a distinction between the subjects of physics and chemistry and that of biology, holding that, whatever may be done with the two former, the latter at least should be taught at a medical school. They point out that a course of elementary biology, such as that laid down by Professor Huxley, does not meet the requirements of the modern medical student, whose concern is chiefly with protozoa and bacteria, a specialization not to be expected in general teaching. The vexed question of the value of a general biological course to the medical student, on which the great biologist Professor Huxley himself expressed a doubt, is too large to be entered upon here. But bacteriology is already separately taught, and we fail to see that a case has been made for dealing with biology in any different manner from the other two preliminary sciences, for whatsoever the elementary training may have been it will obviously have to be supplemented later in connexion with applications to the practical subjects.

With every respect for the opinions of the writers, we fail to see that the arguments which they put forward are at all conclusive upon the practical point which the Council has to consider—namely, whether secondary schools should be recognized as affording adequate facilities for such a grounding in

the preliminary sciences as can be expected from each and every candidate for a medical qualification. It is manifestly impossible that in the space of a year he can become a fully-equipped physicist, chemist, or biologist, far less all three; and though we have consistently advocated the lightening of the curriculum by the elimination of mere academic knowledge, and by the direction of studies towards their ultimate useful applications, yet it cannot be denied that at the outset much of the teaching must be upon lines common to all beginners, and it is hardly possible in the first year to get beyond this. It must also be remembered that the Council does already recognize certain institutions other than medical schools, so that the practical issue is not between medical schools and other institutions which teach science, but is purely whether secondary schools are proper places to be included amongst those outside institutions now recognized as adequate for the purpose.

COLON BACILLI IN WATER.

THE much discussed question of the value of *Bacillus coli* as an indicator of the contamination of drinking water has been raised anew by Gaertner,[1] and his opinions, although opposed to those of most English and American authorities, are worthy of serious consideration. In a lengthy review he has submitted past work and present methods to a critical examination, and his criticism is in the main adverse. Most of the objections which he has to offer, however, are not new; they have already been indicated by bacteriologists in this country. The initial and fundamental difficulty in water examination based upon the presence of *Bacillus coli* is that it is impossible to give a precise definition of this organism. In reality the name does not apply to one particular bacillus but to a whole group, the limits of which are still undefined. With the limited number of diagnostic tests employed by some a very diverse group is included, and even the most exact of modern methods leave a wide range. Such a method is that elaborated by Houston, and extensively practised in this country. To identify *coli* organisms he employs what he terms the "quintuple preferential test." This includes the production of fluorescence on neutral red, the fermentation of lactose with gas production, the formation of indol in peptone water, and the clotting of milk. In addition saccharose is employed as a differentiating agent, such organisms as ferment this sugar being termed "typical *coli*," while those which do not touch it are regarded as "especially typical *coli*."

It has, however, been shown, for instance by MacConkey, that these tests really distinguish groups. By the introduction of a few more differential sugar reactions, these groups can be split into a large number of distinct varieties, which in their turn may be smaller composites. It is extremely difficult to determine where this splitting-up process is to stop and if one reagent is used as a test there is apparently no reason why an almost endless number of reagents should not be used. The introduction of each new test doubles the number of possible varieties. Thus on MacConkey's system the use of seven differential media affords a possibility of 128 varieties; and the introduction of two additional tests would raise the number of possible varieties to 512. It is interesting to note, however, that in his large number of examinations MacConkey isolated only a little more than a quarter of the possible varieties. This fact affords some hope that there is a reasonably small number of actual varieties, and that in the course of time they will be readily and accurately distinguished by the use of suitable media.

Houston's terms, "typical *coli*" and "especially typical *coli*," may be somewhat misleading, for they seem to imply that organisms satisfying the particular tests are peculiarly indicative of contamination from human sources. Such is certainly not the case, and this constitutes Gaertner's second objection to the method. Here we may refer again to MacConkey's results, which show that organisms of Houston's two classes are about equally frequent in human faeces, and that neither is characteristic, for they both occur quite as frequently in the faeces of various other animals. *Bacillus coli*, or its varieties, cannot, therefore, serve to indicate human pollution. Further, it is equally impossible to distinguish *coli* organisms derived from cold-blooded animals, such as fishes. Eijkmann's method of incubating at 46° C. has been shown to be unreliable, for quite a number of colon organisms from fishes grow well at this temperature.

Gaertner's third objection is that colon organisms can remain alive in water for several months, and their presence, therefore, need not indicate recent contamination. This objection, however, is inappropriate, for typhoid and cholera can also remain alive in water for a length of time.

His next criticism has reference to the method of estimating the number of bacteria present in a water sample. The usual procedure is to incubate quantities of the sample from 0.01 c.cm. to 100 c.cm. in suitable media, such as peptone water containing glucose, neutral red, and bile salt. *Bacillus coli* shows its presence by the production of gas and fluorescence. The smallest quantity in which this occurs affords an index to the degree of contamination. According to Gaertner, however, quantities under 1 c.cm. leave too much to chance; there is no guarantee that the bacteria are equally distributed. Again, if quantities such as 0.1 c.cm., 1 c.cm., 10 c.cm., etc., are used, there is no indication whether one organism or nine are present. Thus if the tube containing 0.1 c.cm. is positive while that containing 0.01 c.cm. is negative, there may be any number from one to nine organisms present in the former, and therefore anything from 10,000 to 90,000 in a litre. This objection is reasonable, but Gaertner ignores the fact that it has already been met by the introduction of intermediate quantities, whereby the limit of error is considerably reduced. In calculations based on the larger quantities—that is, over 100 c.cm.—various discrepancies arise, and his view is that the method is only reliable between 1 c.cm. and 10 c.cm. As he himself admits, however, the accurate determination of the number of colon organisms present is not essential; an approximation, on a practical scale, is all that is attempted or desired. A large number of colon bacilli points to a recent direct or indirect contamination with faecal matter, and as amongst those cholera or typhoid may occur, the danger may be regarded as proportional to the number of *coli*, in so far as they are of human origin—a point which cannot be decided without further evidence. In the absence of a knowledge of the local circumstances and the previous condition of the water the examination for colon organisms is of importance only in determining whether the water is for the moment contaminated or not. Gaertner emphasizes the necessity for a thorough investigation of the source and history of the water under

[1] *Zeitschr. f. Hygiene und Infektionskrankh.*, lxxvi (1910), pp. 55–111.

examination, and considers this of greater importance than the laboratory diagnosis. He thus goes back to the doctrine long maintained in this country by practical sanitarians.

In a review of the conditions to which attention should chiefly be directed, he for the most part lays stress on details concerning the origin of the colon bacilli, whether from sewage or other human source or from cattle, cultivated lands, and so forth. He remarks on the much greater expense entailed by such an investigation, but at the same time he considers that the results are more than proportionately valuable.

Whether his criticisms are in every case just or accurate, we cannot but admit that Gaertner has done considerable service in collating an extensive mass of work bearing on a highly important matter. It is in the public interest that the water supply should be of the most unimpeachable character, and it is the duty of the sanitary authorities to ensure the highest attainable standard. To this end a thoroughly reliable method of examination is essential, and we can hardly yet congratulate ourselves that such a method is in use.

PARATYPHOID FEVER.

IN a letter published elsewhere in this issue Colonel Firth, R.A.M.C., Sanitary Officer on the Head Quarter Staff of the Army in India, calls attention to the existing confusion of ideas as to the meaning of the term "paratyphoid fever," and points out the desirability of having a precise and clean-cut definition which will be generally accepted. The introduction of the term "paratyphoid fever" is due to Schottmüller; in 1900–1 he isolated from the blood of a number of patients, whose clinical symptoms resembled those of enteric fever, two bacilli, which he named *B. paratyphosus* A and B respectively. According to his view, paratyphoid fever is a disease presenting the clinical picture of enteric fever, but associated with the presence of one or other of these two bacilli. This definition rests on both clinical and bacteriological grounds, and has been accepted by British writers. They regard paratyphoid fever as quite different from the condition known as "food poisoning," which is caused by *B. suipestifer* or *B. enteritidis* (Gaertner)—two organisms allied to, but not identical with, *B. paratyphosus* B. During the last few years, however, Schottmüller's description of paratyphoid fever has been completely ignored by many Continental writers. For the most part, they describe as paratyphoid fever all cases of infection, whatever their clinical symptoms and course, in which are found bacilli of the "hog cholera" group, whether they be *B. paratyphosus* B, *B. suipestifer*, or even *B. enteritidis* (Gaertner). Briefly, English writers recognize two diseases—namely, paratyphoid fever and "food poisoning"; most Continental writers draw no such distinction. As a result of these divergent views many conflicting and misleading statements have found their way into the literature of this subject. The general tendency of recent work is to show that paratyphoid fever is a definite entity as distinct from "food poisoning." In the first place, it appears that *B. paratyphosus* A and B, when identified by adequate tests, are almost invariably confined to the human alimentary canal; they do not occur in the lower animals or in food. Secondly, evidence is gradually accumulating that carriers play a considerable part in the causation of infection by these two bacilli. A number of persistent carriers of *B. paratyphosus* B have now been discovered in Europe and America, and in their distribution as regards sex, in the frequent coexistence of biliary disorders, and in the presence of agglutinins in their serum, these carriers present a close analogy with typhoid carriers. Similar evidence of a less complete kind has been obtained in India in the case of *B. paratyphosus* A. Infections by these bacilli thus resemble enteric fever in both their clinical and their epidemiological features. They are clearly marked off from the cases of acute gastro-enteritis known as "food poisoning," which are brief in duration, often epidemic, and usually result from the consumption of infected meat; they are, moreover, almost invariably caused by *B. suipestifer* or *B. enteritidis* (Gaertner), organisms which are frequently found in the alimentary canal of the lower animals, but are very rarely present in healthy men. It is true that anomalous cases of acute infection caused by *B. paratyphosus* B, or of prolonged pyrexia caused by *B. suipestifer* or *B. enteritidis* (Gaertner), occasionally occur, but they are too infrequent to be of any practical importance. The time seems to have come, therefore, for accepting fully Schottmüller's definition of paratyphoid fever—namely, that it is a disease clinically resembling enteric fever, but associated with the presence of *B. paratyphosus* A or B in the blood or excreta of the patients; and it is desirable to place cases of acute gastro-enteritis ("food poisoning") in a different category.

QUACKERY IN THE "TATLER."

IN one of the best of his *Tatlers*[1] Sir Richard Steele, writing under the pseudonym of "Isaac Bickerstaff," has something to say about the quacks of the early part of the eighteenth century. "I do not remember," he remarks, "that in any of my lucubrations I have touched upon that useful science of Physic, notwithstanding I have declared myself more than once a professor of it." He had also studied astronomy, for he had never known a physician recommend himself to the public who had not a sister art to embellish his knowledge in medicine; and there was the best of warrants for this, for had not Apollo himself been god of Verse as well as of Physic. "Poetry to Physic is indeed like the gilding to a pill; it makes the art shine, and covers the severity of the Doctor with the agreeableness of the companion." The quacks, therefore, will not be behind the regular practitioners of the healing art; they are thoroughly sensible how necessary it is to support themselves by these collateral assistances, and always lay their claims to some supernumerary accomplishments which are wholly foreign to their profession. Some instances are given. "About twenty years ago it was impossible to walk the streets without having an advertisement thrust into your hand, of a Doctor 'who was arrived at the knowledge of the Green and Red Dragon, and had discovered the Female Fern-seed' nobody ever knew what this meant, but the Green and Red Dragon so amused the people that the Doctor lived very comfortably upon them." Then there was that mysterious, if not very comforting, word "Tetrachymagogon," which, pasted upon every corner of the streets, led many who were sick to have recourse to that learned man for their physician. One quack recommended himself to his clients on account of the fact that he "had studied thirty years by candle light for the good of his countrymen." We wonder what he would have said to the Daylight Saving Bill of these times. "There are some," continues the writer, "who have gained themselves great reputation for physic by their birth, as the Seventh son of a seventh

[1] *The Tatler: or, Lucubrations of Isaac Bickerstaff, Esq.* Vol. iv, No. 240, October 21st, 1710.

son; and others by not being born at all, as the Unborn Doctor, who, I hear, is lately gone the way of his patients." It must, of course, be an agreeable thing to have a tooth drawn by one who has exercised the same kindly office for a king or an emperor, and the quacks are not found wanting here. "I believe I have seen twenty Mountebanks that have given Physic to the Czar of Muscovey" is the reflection of the writer. But Steele had himself been practising the arts of the quack, for in his thirty-fourth *Tatler*[2] he had said: "Having taken upon me to cure all the distempers which proceed from affections of the mind, I have laboured, since I first kept this public stage, to do all the good I could, and have perfected many cures at my own lodgings." Specially wonderful had been the effects of a liquor, "which I call Bickerstaff's Circumspection-water," which had cured "fine Mrs. Spy of a great imperfection in her eyes, which made her eternally rolling them from one coxcomb to another in public places, that it at once lessened her own power, and her beholders' vanity . . . she now looks right forward." It is to be recommended for "a Bride in her first month, a Lady soon after her husband's being knighted, or any person of either sex who has lately obtained any new fortune or preferment." A witching water, indeed, worthy Isaac, not unwelcome even in twentieth century days!

THE PENZANCE BOARD OF GUARDIANS.

Those endeavouring to defend boards of guardians against the perils to their existence imported by the Minority Report of the Poor Law Commission are scarcely likely to thank the Penzance Board of Guardians, which is at present busily engaged in providing ammunition for the foe. The fashion in which it exercised its power of selecting a medical man to fill the No. 5 District of the union some weeks ago was well calculated to create surprise, and for certain reasons it seemed to us highly probable that the Local Government Board would refuse to confirm the appointment then made. We expressed this anticipation in a note on the subject in our issue for May 13th, and the proceedings at a meeting of the guardians on May 25th show that we were right. It was then reported that the Local Government Board had reaffirmed a refusal to sanction the appointment, and the guardians had thus to consider, much against their will, what step they should next take. It was moved that they should appoint at their next meeting the original holder of the post, as he and the medical man whose appointment the Local Government Board refused to sanction were the only candidates their advertisement had produced. Further expenditure in advertising, it was pointed out, was useless, for the medical men of the district would prove men of honour in keeping to the terms of the agreement among themselves. Nevertheless, it was decided by a majority to advertise the post again, and meantime to engage the temporary services of a medical man in the town to carry on the work. It will thus be seen that the Penzance Board of Guardians seems disposed to add to the number of like bodies which have indulged in fruitless contests with the medical profession. Usually it is the ratepayers who are the chief sufferers; but in this particular instance the poor may suffer likewise, for there is reason to anticipate that the board will be unable to persuade any medical man to act as locumtenent. But in any case the contest will do boards of guardians no good, since it can only tend to foster the belief that it is personal prejudice rather than public spirit that influences them. Moreover, the prejudice in this particular case may well be deemed of a specially petty kind, for the original holder of the post is a man of proved merit, and the objections to reappointing him raised by certain guardians spring solely from the fact that he vacated the appointment as a protest against the smallness of the salary that was being paid. In this protest he was supported by the medical profession, and there is no doubt that it was well founded. The view that the Penzance guardians were paying inadequate salaries was also held by the Local Government Board, and has since been adopted by the guardians themselves. Hence, those who desire to see present systems of administering Poor Law relief amended, will regard the spirit shown by this board of guardians with much regret. On the other hand, we have to congratulate the local medical profession. It has made no exaggerated claims, has put forward its contentions in a becoming fashion, and shown perfect *esprit de corps*. In the long run its wishes are bound to prevail, for it has long since been proved that when the medical profession in any district is united, the position of any medical man who accepts an appointment in opposition to it soon proves untenable. Indeed, it is rarely now that medical men of a desirable kind allow themselves to be induced to intervene in these contests as opponents of local men.

[2] *The Tatler*, vol. i, No. 34, June 28th, 1709.

OPEN-AIR SCHOOLS.

Some years ago an inquiry into the health of the children attending the elementary schools of Berlin showed that 7 per cent. of them were dull and backward, and that of these half showed signs of malnutrition from various causes. The outcome of this inquiry was the establishment of an open-air recovery school in 1904. Since that date similar schools have been opened not only in Germany but in various towns in England. The report of the second year's work of such a school which is maintained by the City of Sheffield Education Committee has lately reached us. In 1910 the number of children recommended by the medical officers of the different Sheffield schools, and by others concerned, was 170, but of these the chief school medical officer, Dr. Ralph P. Williams, was able to admit only 116. Of these 62, suffered from anaemia and malnutrition, 29 from tuberculosis in one form or another, 17 from oral sepsis, a like number from bronchitis, and 12 from lateral curvature. Some other diseases were represented by a very few cases of each. Most of the children improved during the summer months, in which only was the school open; it seems indeed a pity that treatment cannot be continued all the year round, for many of the patients must surely relapse in the winter for want of good food and surroundings. It is worthy of remark that nearly all the children were examined by the dental surgeon, who performed 90 extractions and filled 28 teeth. An important part of the treatment was the two hours' rest in the open air, which was taken lying in deck chairs with the feet raised. In the educational work, prominence was given to personal hygiene and to nature study; special attention was given to physical exercises, to which Dr. Williams attributes a great deal of the improvement which took place. At the end of October, when the school was closed, 44 children were noted as cured, 51 as improved, and 3 as in the same condition as when admitted. Dr. Williams rightly lays more stress on the value of the school as a prophylactic than as a means of cure, for the cases of malnutrition are just those which are likely to become tuberculous. The London County Council has no school similar to this, although, as is well known, it maintains thirty-eight schools for crippled children and three summer open-air schools. It also provides teachers for two hospitals and for an

open-air school for tuberculous children at Kensal Rise, which is carried on by the Paddington Dispensary, largely with a view to training the children to make the best of their home life in a hygienic sense. It seems a pity that more has not been done in London in the direction of open-air recovery schools. Probably the difficulty of transport which has been felt in Sheffield is still greater in this huge county of houses, and too much time would be occupied in taking the patients from the central districts to places where fresh air and, above all, sunshine are plentiful.

PENETRATING WOUNDS OF THE PREGNANT UTERUS.

A RECENT discussion at a meeting of the Obstetrical Society of Paris, relative to the case of a woman who stabbed herself during pregnancy,[1] turned attention to a fact perhaps not generally recognized. MM. Tissier and Bar noted, as Puech had already demonstrated after careful research, that penetrating wounds of the uterus are relatively not highly dangerous, since the uterus is retractile and its contents aseptic. The general surgeon knows full well that the great danger from penetrating wounds of the abdomen is sepsis from wounded intestine; hence when it is also shown by experience that haemorrhage is not always severe in wounds of the uterus, it is not difficult to understand the significance of Puech's conclusions. The instance on which the discussion was based was reported by MM. Boissard and Chénier. The patient, whose pregnancy had reached term, attempted suicide by stabbing herself in the abdomen. Chénier found that the wound was on the outer border of the right rectus muscle; it was bleeding but little. There was prolapse of the omentum. The latter was resected, the parietal wound enlarged, and the abdominal cavity laid open. There was an incised wound about an inch long on the anterior surface of the uterus; its edges were not everted. Chénier closed it by suture, and then applied a continuous suture to the serous coat. The child was living and was delivered spontaneously five hours after the operation. It bore a wound on the gluteal region. At its birth it was in a state of suspended animation, and it died notwithstanding systematic efforts to revive it. Dr. Chénier justified his course of action on the ground that the patient was suffering from much moral and physical shock, so that Caesarean section appeared dangerous. MM. Bar, Brindeau, and Boissard insisted that in the case of a penetrating wound of the uterus late in pregnancy it is really safer to perform Caesarean section at once, as the surgeon could hardly make sure that the sutures applied to close a uterine wound would not yield during labour, nor could he feel certain that the child might not be badly wounded, endangering the mother as well as itself. In these days when, as Dr. Amand Routh and others have shown, Caesarean section is, thanks to aseptic technique, an operation which on the whole entails less risk than more conservative proceedings, the general surgeon must, we believe, give a verdict in its favour in respect to stabs of the gravid uterus.

[1] Plaie pénétrante de l'abdomen ayant intéressé l'utérus gravide suture de l'utérus, *Annales de gynéc.*, April, 1911, p. 231.

PUBERTY AND THE NEURO-PSYCHIC SYSTEM.

OF all subjects under the sun none is more important, more secret, and looked at more askance as matter for public discussion than that of the sexual life. It is true that of late years the world has grown more tolerant in this respect; but the fact remains, as Dr. Putnam, in his introduction to Dr. Brill's translation of Freud's famous Three Essays[2] points out, that studies of sexual life are unpopular. Probably, also, Dr. Putnam is right in saying that critics fret over the amount of sexuality that the Viennese professor finds in the histories of his patients, and assume that he has put it there. It is, indeed, only natural, when he finds that infantile thumb-sucking or toe-sucking is a manifestation of infantile sexualty, when it is suggested that childish muscular activity has an erotic basis, and that even youthful mental occupation is a source of sexual excitement, that the average man should feel some scepticism. Closer examination shows that the disparity of feeling between Professor Freud and his critics proceeds from a fundamental difference in their points of view. For Professor Freud's critics, as, indeed, for most people, evidences of sexual activity prior to puberty are regarded as unnatural and as in all probability the precursors of perversion; whereas one of the many services rendered by the psycho-analytic method associated with Professor Freud's name is that it has demonstrated that sexual manifestations in infants are normal, and that the proper development of sexuality from birth onwards to puberty is indispensable for the culminating functions of sexual maturity. Once Professor Freud's point of view is adopted, the facts fall into their proper place as matter deserving of careful study. The three essays are entitled "The Sexual Aberrations," "Infantile Sexuality," and "The Transformation of Puberty." Professor Freud's views as to the dependence of the neuroses upon aberrations of the sexual life and the parts which "repression" of the libido and its "conversion" or deflection into other somatic outlets are widely known and have been already stated in our review of his *Selected Papers on Hysteria*[3] and elsewhere, but we may perhaps recall his statement that "with a normal *vita sexualis* no neurosis is possible" and "the symptoms are the sexual activities of the patient." Each of Professor Freud's works is supplementary to the others, and is to that extent indispensable for a just appreciation of his theory. In the first of these three essays the primary step in his argument is that in no normal person at some time in his development does the normal sexual aim lack some "perverse" element. The "perversity" consists on the one hand on the extent of the departure of this element from the mean, and on the other hand in the dwelling upon one of these elements and the arrest of the individual upon what should be a subsidiary stage of his sexual development. In hysteria, Professor Freud maintains that there is an instinctive turning away from intellectual considerations of the sexual problem; there is great desire and exaggerated rejection. It is necessary to emphasize this point because a large part of the opposition Professor Freud's assertions have encountered has been due to the idea that he teaches that the psychoneurotic symptoms are coincident with the normal sexual impulse. This is not the case, and in the present essay he contends that the symptoms are not the result only of the so-called normal impulse, but represent "the converted expression of impulses which in a broader sense might be designated as perverse if they could manifest themselves directly in phantasies and acts without deviating from consciousness." The symptoms are therefore partially formed at the cost of abnormal sexuality and "the neurosis is, so to say, the negative of the perversion." For the

[2] *Three Contributions to the Sexual Theory.* By Professor Sigmund Freud, LL.D., Vienna. Authorized translation by A. A. Brill, Ph.B., M.D., of Columbia University, U.S.A.; with introduction by J. J. Putnam, M.D. Neuroses and Mental Disease Monograph Series, No. 7. New York: Journal of Nervous and Mental Diseases Publishing Company. 1910. (Pp. 91. $2.00.)

[3] *Selected Papers on Hysteria and other Psychoneuroses.* By Professor Freud. 1909.

manner in which Professor Freud reveals, with much penetration, the interplay of conflicting tendencies in the production of neurotic symptoms, we must refer readers to his works, as also for the arguments advanced to establish the validity of his theory. That the practice of a psycho-analytical method which, to quote Dr. Putnam, urges the patients into "an inexorable scrutiny of the unconscious regions of their memories and thoughts"—and this, be it remembered, with particular reference to their sexual life—should be confined to few, is only natural and fitting. That the method also puts the medical practitioner behind the confessional cannot be doubted. Nevertheless, the results that have so far accrued from its practice in the hands of only a few are considerable. In particular, the work inaugurated by Professor Freud in the obscure field of infantile sexual manifestations, and the great transformation of puberty, and his demonstration of the parts played by repression and "sublimation," through which the powerful excitations from individual sources of sexuality are discharged and utilized in other and higher spheres, seem likely to prove of the highest value to pedagogy and in the earliest training and nurture of the child. Certainly no one can read these essays without an inward acknowledgement of their author's acumen, courage, and endless patience in the pursuit of truth; nor, having read them, fail to realize more clearly the need for fuller knowledge and more careful guidance of the gradual unfolding of the sexual life.

CRAFT SCHOOLS FOR YOUNG CRIPPLES.

A striking proof of the splendid work done by the Guild of the Brave Poor Things and its widespread and varied charities was afforded by a charming exhibition and sale of needlework and woodwork made by the pupils of the Heritage Craft Schools for Crippled Boys and Girls at Chailey, Sussex, which was held on May 15th and 16 h at South Lodge, Rutland Gate, lent by Lord and Lady Llangattock. These schools were founded for the purpose of providing crippled children with a means of gaining their own livelihood; and the success of the enterprise has been amply proved by the specimens of exquisite needlework, the carvings, toys, and different specimens of the oak furniture for which the boys at Heritage schools are famous, on view at the various stalls. Mrs. C. W. Kimmins, the founder and honorary secretary of the schools, spoke most warmly of the generous response which has been made to the appeal issued by Princess Louise Duchess of Argyll, the chief patroness of the guild, on behalf of funds for new school buildings for the boys, and added that the next development at Chailey would take the form of a residential trade school for the girls, where those who were unfit for life in an ordinary London workroom could remain in an independent position at the Heritage, and earn a living without detriment to their health. The foundation of such an establishment would be a fitting completion of this most excellent charity, whose merits were touchingly displayed by the bright faces of a handful of Heritage children who were to be seen assisting at the sale of their own handiwork. The appearance and bearing of these little sufferers showed, even more plainly than did the results of their toil, the salutary effects of this labour of love. In connexion with the appeal made by the Duchess of Argyll, a special meeting was held on May 26th in the Jehangier Hall of the University of London, for the discussion of the medical side of the work which is being carried on at Chailey. The chairman, Sir Thomas Barlow, described a visit which he had paid to the Heritage schools, and spoke with cordial admiration of the care lavished upon the little inmates, and the atmosphere of freedom and affection which surrounded them, which constituted one of the most pleasing features of the establishment. But much still remained to be done if the children were to derive the full benefit from their training. New workshops for the boys were imperative, and it was also of the utmost importance that proper provision should be made for keeping cases of doubtful illness in quarantine. A considerable sum had already been subscribed for the former purpose. During the meeting Mrs. Kimmins announced that she had just received a telegram from an anonymous subscriber who offered to contribute £1,000 towards the observation and isolation block. She added that a similar sum would enable them to build the much-needed hospital school of recovery, where children of either sex could be kept under medical treatment before entering the Craft Schools, whilst £500 was required for its equipment, and another £500 would suffice for the erection of the combined Cottage Laundry and Country Holiday Home. The meeting, which was largely attended, was also addressed by Sir William Collins, Dr. Russell Wells, and others.

THE VIRTUES OF ALOES—AND OF POTATO FLOUR.

Elsewhere in this issue are published the results of the examination of a number of proprietary medicines for constipation and indigestion, including several old-established so-called "family medicines." It might be supposed that here, if anywhere, the "patent medicine" would justify its existence; that for the treatment of so common a disorder as constipation a few drugs might be found to suit the vast majority of people, and that medicines which have been made in the same way and taken for generations must have genuine merit. It may be at once conceded that there is a certain amount of support for such a view; the analyses show that all the old-established pills dealt with, and some of those recently introduced, contain aloes, usually in combination with one or more of the drugs colocynth, jalap, and rhubarb, and occasionally with a carminative, such as oil of peppermint. Such pills will certainly act on the bowels, and to that extent, at least, they will fulfil the promises held out by the makers; but this is a somewhat slender basis on which to attempt to justify the way in which they are advertised and recommended. Some of the extracts from advertisements given in the report show that excessive claims are made in nearly every case, while in some a pretty high degree of ignorance is shown, as when it is proposed to treat the majority of diseases by a "system of medicine" consisting of one pill and one ointment. But it is possible to suppose that even the worst of these older nostrums was genuinely believed in by its maker, whereas it is more difficult to extend this charitable theory to some of those of recent introduction. The report in question includes one nostrum for which the most absurd claims are made; this precious substance is said to be composed of the active principles of rare herbs growing on the Himalaya mountains, not even the names of which are known to Western science, and it is pretended that it has the magical property, when swallowed, of seeking out any organ or portion of the body which is in an unhealthy state and proceeding to cure it. The cold fact disclosed by analysis is that this powder is simply potato flour, and it is evident therefore that if the persons putting it forward themselves believe what they say about it they must be of a very credulous disposition. No doubt at the price of 2s. 9d. for about an ounce, divided into twenty powders, it is a highly remunerative article of trade to the vendors.

AIR SICKNESS.

MR. BALFOUR, after his flight with Mr. Grahame White the other day, confessed that a prolongation of the experience might have had unpleasant results. Air sickness is one of the transient disorders which accompany many of the applications of scientific discovery to ordinary life. It has been carefully studied by Drs. René Cruchet and Moulinier, who took advantage of the opportunity offered by the "aviation week" at Bordeaux (September 11th to 18th, 1910) to interrogate the chief airmen who took part in the proceedings and to measure their blood pressure before and after several of their flights. At a meeting of the Paris Académie des Sciences on April 24th they presented a report of the results of their observations, an account of which has recently appeared in *Paris Médical*. During the ascent the symptoms noted are dyspnœa, tachycardia, slight malaise, some difficulty in hearing with buzzing in the ears, headache, and urgent desire to pass water; moreover, the cold soon becomes unbearable. These various phenomena recall those of mountain sickness, but they are observed at a much less altitude, showing themselves at a height of 700 to 800 metres, and in beginners even at 400 to 500 metres. During the descent the tachycardia, palpitations, difficulty of breathing, buzzing and whistling in the ears, and the desire to empty the bladder, increase the nearer the airman approaches the earth; but the principal symptoms are headache, a sensation of burning and smarting all over the face, which is congested, and a tendency to sleep which now and again compels the airman to close his eyes notwithstanding the utmost his efforts to keep awake. On landing, the buzzing and whistling in the ears, the headache and the sleepiness increase still more; in addition there is giddiness, numbness, and muscular slackness with cyanosis of the extremities. The pulse is more rapid than at the start, and the blood pressure is increased. The variations in blood pressure seem to MM. René Cruchet and Moulinier to be explicable by the fact that in a person who has come down to earth in four, five, or seven minutes after reaching a height of 1,000, 2,000, or 3,000 metres in twenty, thirty, or forty minutes, there is no time for the circulatory system to adapt itself to the varying barometric pressures—equivalent to 520 millimetres of mercury at 3,000 metres, 591 at 2,000 metres, and 760 at 0—which the airman passes through so rapidly. MM. Cruchet and Moulinier were struck by the constancy and degree of these variations of blood pressure. These are particularly marked after rapid ascents and descents from high altitudes, whereas flights at moderate heights do not, in trained subjects, cause the phenomena indicated.

SANATORIUMS FOR CONSUMPTIVE CHILDREN.

THE results obtained by sanatorium treatment are steadily accumulating, and definite data, culled from many sources, are now available for the formation of an approximately accurate judgement as to the actual facts. The valuable report recently issued by the Charity Organization Society[1] has shown that, at the present time, the proportion of success, as judged by ability to work, stands at a little over 50 per cent. An investigation on similar lines of the results obtained in the case of consumptive children treated in special sanatoriums, would probably show a higher proportion than this, if we may take as a sample the report recently issued by the authorities of the Holt Sanatorium for Consumptive Children in Norfolk. The record of work done during the last two years is most encouraging. In almost every one of the cases of early disease the progress of the malady has been arrested or an apparent cure has been achieved. Amongst cases of more pronounced tuberculosis of the lung the proportion of improvement or arrest was much higher than in the similar class of cases in adult life. The presence of glandular and joint infection among children has always been recognized, but the incidence of actual tuberculous disease in the lungs is much more frequent than is perhaps even yet generally appreciated. The disease may make insidious progress without such marked disturbance of health as in adult patients, and hence the vast importance of recognizing it and applying rational treatment before it has advanced beyond the limits of curability. The early diagnosis and prompt treatment of consumption in children is indeed one of the chief factors in the crusade against tuberculosis, and if a Government grant is to be made for the provision of sanatoriums in general, the claims of the children's sanatoriums should take precedence of all others. The Holt Sanatorium furnishes an object lesson which has recently been emphasized by the special patronage of Queen Alexandra and by a generous donation from Mr. Otto Beit. A wide extension of the system cannot fail to reduce the number of adult consumptives, and is deserving of special consideration in any scheme of State Insurance.

[1] BRITISH MEDICAL JOURNAL, May 13th, p. 1137.

THE BUTLIN DINNER

SOME 170 members have intimated their intention of attending the complimentary dinner to Mr. Butlin on Tuesday, June 13th, at the Connaught Rooms, Kingsway, W.C. Applications for dinner tickets should be made to the Honorary Secretaries, 429, Strand, W.C. A special table will be reserved for any ten diners who may, on or before Thursday, June 8th, signify their desire to sit together.

THE annual meeting of the Fellows of the College of Surgeons of England for the election of members of council will be held on Thursday, July 6th, at 3 p.m. As Mr. Butlin holds the office of president he will not retire, and thus there are but two vacancies, the other members, who have held their seats on the council for eight years, and who are therefore due to retire, being Mr. Clinton Dent and Mr. G. H. Makins, C.B. Both members, we understand, will seek re-election. Friday, June 9th, is the last day on which the usual forms, duly signed by intending candidates, will be received by the Secretary of the College.

THE Committee responsible for the organization of the Pathological Museum is anxious to secure the co-operation of the officers of the various sections at the forthcoming Annual Meeting. It will be glad to take charge of, and place in the museum for exhibition, any specimens, casts, photographs, diagrams, or microscopic slides brought forward by those who are reading papers or taking part in the discussions. These exhibits will be available for demonstration by the speakers at the Sectional Meetings. If any members of sections who propose to bring any material will communicate direct with Mr. A. W. Nuthall, F.R.C.S., 89, Cornwall Street, Birmingham, the honorary secretary, or with any of the members of the Executive, it will greatly facilitate the necessary arrangements.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

LONDON.

MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

IT was reported to the Education Committee of the London County Council on May 24th that the reply of the Board of Education had been received to the letter from the Council giving the assurance that all practical steps would be taken to insure that by October, 1911, the scope of the London scheme of medical inspection and treatment would be clearly defined and that substantial progress would have been made towards its efficient working.[1] The Board stated that the assurances contained in the letter satisfied it that serious attention was being given to the defects of working to which attention had been called, and that there was a definite prospect that remedies would be found for such defects as were not yet remedied. The Board accordingly sanctioned the extension of the present arrangements until December 31st, 1911, subject to the following qualification: It was observed that certain modifications had been made in existing arrangements, particularly in the direction of increasing the number of cases at the London and other hospitals. The Council had not supplied the Board with draft agreements or other evidence to show that the hospitals concerned were actually prepared to undertake work on the extended scale suggested, and the sanction given must be subject to the Council furnishing the Board with a definite statement in each case that the contracts between the Council and the hospital were, in fact, agreed upon. The Board of Education also asked for a comprehensive statement showing the number of cases of each type to be received at the several hospitals, the number of clinical assistants, anaesthetists, etc., in respect of whom the Council makes contributions, and the rates of those contributions. The Children's Care Subcommittee has arranged to supply this information to the Board.

Extensions of the Medical Treatment Scheme.

In declining an offer made by the governing body of the Western Ophthalmic Hospital, Marylebone Road, to enter into an agreement with the Council for the medical treatment of school children, the Children's Care Subcommittee stated that to serve this area properly two medical treatment centres must be established, and these, with the St. Mary's Hospital, where the Council's scheme was already in operation, would include the district served by the Western Ophthalmic Hospital. An offer by the Home and Infirmary for Sick Children, Lower Sydenham, to co-operate with the Council in the establishment of a school clinic was also declined, the subcommittee stating that arrangements already made, or about to be made, for medical treatment in the district would prove equal to the requirements.

The Health of School Children.

In a quarterly report upon the health of London elementary school children the Education Committee referred to the recent epidemic of measles; 508 schools had been under observation, and 18 class-rooms and 13 departments had been closed for varying periods. The unprotected children over 5 years of age were excluded from 413 class-rooms, and the unprotected children under 5 from 226 schools. Four schools had been under observation for diphtheria and 82 for scarlet fever. Eleven school children suffered from small-pox during the spring term. In the same period 903 schools were visited by the school doctors who inspected 131,385 children; of these 48,494, not including dental cases, were found to be suffering from various ailments, 28,826 of these being cases included in the Council's scheme. Of this number treatment was actually provided by the Council for 6 920 cases, "but it must be borne in mind that the Council's facilities did not at present exist in all districts of London. A considerable percentage of the remaining cases obtained treatment independently of the Council's arrangements."

[1] BRITISH MEDICAL JOURNAL, April 8th, p. 836; April 15th, p. 897.

MANCHESTER AND DISTRICT.

MANCHESTER HOSTEL FOR MEDICAL STUDENTS.

LISTER HOUSE, the new hostel for senior medical students connected with the Manchester University, is close to the Royal Infirmary. Accommodation is provided for about ten students, and the visitors who went over the premises after the opening ceremony were pleased with the homely and comfortable character of the place. The prime movers in carrying out the scheme have been Mr. G. A. Wright, honorary surgeon of the infirmary, and Dr. Tylecote, together with Mr. Joseph Bell. Sir Edward Donner presided over the opening ceremony, and stated that within a month after the scheme was first formulated and an appeal issued, sufficient money had been promised to justify the committee in making a start. The sum of £540 had been spent in alterations and improvements to the building, and there was no deficit to meet, though the committee would especially be glad to receive gifts of books and pictures, and would be especially glad if some friend would give a piano. In declaring the building open, Dean Welldon alluded to the great advantages that would accrue to the students from living in the hostel. Its proximity to the infirmary would enable the students to take every advantage, and especially enable them to keep in close touch with the emergency work. Mr. G. A. Wright said the hostel was in no way in competition with the existing halls of residence, and only catered for students in their last year of medical work. For the present, Dr. Tylecote is performing the duties of honorary warden of the hostel.

TRADE IN PENNY DRUGS.

A case that was before the Palatine Chancery Court, Manchester, for several days last week gives an insight into the great demand for "penny drugs." The case was a dispute between two brothers as to the use of the name of a large firm of manufacturing chemists; but it was stated that the chief part of the business of the firm was to supply retail dealers with pills, drugs, powders, and similar articles made up for sale in penny packets. The firm had travellers visiting practically every town within a hundred miles of Manchester, and had between 17,000 and 18,000 shopkeepers as customers; it was said that in recent years the annual turnover had been from £22,000 to £27,000. This may perhaps explain some of the facts given in the last issue of the BRITISH MEDICAL JOURNAL, where it was stated that it is quite a common thing in many towns in Lancashire to find grocers, greengrocers, and other small shopkeepers selling headache powders and pills.

TUBERCULOUS MILK AT WARRINGTON.

In his annual report the medical officer of health for Warrington states that systematic examination of the milk supply of the town has been carried out during the past year, and has disclosed the very serious extent to which the milk is infected with tubercle germs. It was found that eight farms had been supplying tuberculous milk, and it was estimated that from these farms about 2,600 pints of milk were distributed in the borough daily, and as all the milk on a farm was usually mixed, the whole became infected, though only one cow in the herd was tuberculous. The town council passed a resolution calling on the Government to urge forward the promised legislation enjoining on local authorities uniform and efficient action, and allowing reasonable compensation to owners of cattle for the compulsory slaughter of

animals, and to butchers who voluntarily surrendered tuberculous carcasses. It was reported that the death-rate of the town was the lowest on record, and that there had been a great decrease in the rate of infant mortality.

WEST RIDING.

WEST RIDING ABERDEEN UNIVERSITY GRADUATES' SOCIETY.

THIS society, which is in a flourishing condition, held its tenth annual dinner at the Midland Hotel, Bradford, on May 16th. This annual dinner, which is the main manifestation of the existence of the society, though it is not the only one, is held in alternate years in Leeds and in Bradford. The gathering on this occasion was anticipated with unusual pleasure when it was learnt that Principal George Adam Smith, D.D., had accepted the invitation of the committee to be the chief guest of the evening. During the few years he has occupied the position of Principal, Dr. George Adam Smith has done excellent work for the university, and has won golden opinions from all with whom he has come in contact. Every one who knows anything of the work of the Principal or Vice-Chancellor of a Scottish university will understand that when this can be said with truth of a man it means that he possesses many varied qualities, among which must be enumerated not only learning and knowledge, but strength, tact, and courtesy.

In responding to the toast of the University, which was proposed in a speech of great eloquence by the Rev. Archibald Duff, D.D., LL.D., the Principal gave a most interesting account of the various activities of the university during the last twelve months, touching on the new medical ordinances and making some reference to the suggestion of the Treasury that in the Scottish universities there should be, as one of the conditions of an augmented grant, the introduction of a new scheme of fees which would secure that in each faculty an inclusive fee should admit to attendance at all the lectures and courses of study in that faculty, and further that the sum decided upon should be uniform for the various Scottish universities. The Principal was particularly careful not to express his own views on the main question, but he made it clear that the advice, or rather, the condition laid down, had emanated not from a body specially appointed to report on the question after full and exhaustive investigation and the examination of witnesses, but from a body of men who might or might not be fully acquainted with the true requirements of the situation, and he assured the meeting that the university would strenuously oppose anything in the way of conditions which would interfere with that freedom in conducting its teaching in its own way which had been so conducive to its success in the past. In that part of the Principal's speech which dealt with less academic and more personal matters he was particularly happy. A later speaker struck a true note when he said that the Principal was not the possession only of the present undergraduates and recent graduates of the university, but of all who had been connected with the university in former years; he was not merely the Principal but our Principal.

The gathering, which was a large one, was again gratified by the presence of Professor Stephenson, who was concerned in the initiation of the society and who has not missed being present on any one of these annual gatherings. There is no doubt that his genial presence and kindly encouragement has done much to secure the success of the association.

The dinner was admirably presided over by Dr. J. Hambley Rowe, who for nine years acted as secretary, and whose strenuous labours all must appreciate.

The number of guests was greater than usual and included Dr. Forsyth of Leeds, who represented the Glasgow kindred association, and many others. Those graduates of the University of Aberdeen who are resident in the West Riding of Yorkshire look with some pride to the success which has attended the formation of their association and with cordial sympathy to the similar success which has waited on the more recent kindred societies of the universities of Glasgow and Edinburgh.

BIRMINGHAM.

THE MEDICAL BENEVOLENT SOCIETY.

THE annual report for the year 1910 is the eighty-ninth since the foundation of the society in 1821, and it shows that the good work of granting relief to those who are in need of assistance has been accomplished as usual in a quiet and unostentatious manner. All duly qualified medical practitioners residing within fifty miles of Birmingham may become members, and if afterwards they should reside outside this area they do not forfeit their membership by so doing. The funds of the society now amount to over £16,000, and during last year £100 was invested. The income for 1910 was £845, made up as follows: Interest on investments, £534; subscriptions, £232; and donations, £79. Among the donations was one of £50 from Sir Thomas Chavasse and £10 10s. from the Medical Insurance Committee of the British Medical Association. Twenty five annuitants, who were chiefly the widows and children of medical men, but in three cases medical men themselves, received help from the society during the year, the value of the grants ranging from £36 to £18. The sum expended on grants and donations in 1910 was £706. The total number of benefit members was 386, and during the year 7 members died, 5 left from various causes, and 8 new members were elected.

At the annual meeting, which was held at the Midland Hotel, Birmingham, on May 19th, Sir Robert Simon presided. The officers elected for the forthcoming year were: President, Mr. W. F. Haslam; Ex-President, Sir Robert Simon; President-elect, Dr. Langley Browne; Vice-Presidents, Dr. T. E. Underhill and Mr. H. Eales; Treasurers, Mr. F. Marsh and Mr. W. F. Haslam; Auditor, Dr. Stacey Wilson; and Honorary Secretary, Dr. Sawyer. Four vacancies in the Court of Directors were filled up by the election of Dr. Agar, Sir Thomas Chavasse, Sir James Sawyer, and Dr. A. S. Underhill.

A vote of condolence was passed with the relatives of the late Dr. E. B. Whitcombe, Professor of Mental Diseases in the University of Birmingham and Medical Superintendent of the Birmingham City Asylum at Winson Green. He had been for many years a Director of the society and in 1907–8 its President. He was one of the most loyal and staunchest friends the society ever had, and among his fellow professional men and among the public generally was most highly respected and honoured.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

UI BREASAIL.

THIS great health and industries exhibition, reference to which has previously been made in these columns, was opened on May 24th by Lady Aberdeen, and has attracted large numbers of the public. The industrial part consists of exhibits of Irish manufactures and products. The health section is divided into three main subsections. The first, under the charge of Professor W. H. Thompson, is designed to exhibit the nutritive value of the various common foodstuffs. It is illustrated by numerous diagrams, and demonstrations of cooking are given. The second subsection, under the superintendence of the Women's National Health Association, contains exhibits illustrating the proper means of caring for the teeth, methods of disinfection, and methods of pasteurizing milk. Many other rules and principles of hygienic living are illustrated in this subsection. The third subsection consists of a series of exhibits collected by the Nurses' Social Union, illustrating in a striking and somewhat sensational manner some of the dangers to which young children are likely to be

exposed through ignorance or negligence on the part of mothers or nurses. On the whole, the health exhibition strikes us as only moderately good, but perhaps its very limitations will render it all the more useful to those for whom it is mainly intended by calling attention to a few important matters without too much detail. Lectures have been given daily during the period of the exhibition on various sanitary and hygienic subjects. Another large section consists of the town planning exhibit, which was arranged some time ago in London by the Royal Institute of British Architects. It contains a large number of engravings, maps, plans, and models of ancient and modern town planning. The exhibition will close on June 7th.

DUBLIN SANATORIUM FOR CONSUMPTION.

As reported at the time, the Governors of the Royal Hospital for Incurables, Dublin, decided some months ago, at a general meeting, to increase the accommodation of the hospital for advanced tuberculous cases by building a large pavilion in the hospital grounds capable of housing one hundred patients. The appeal for funds has not yet produced the requisite sum, and opposition to the scheme has been growing; some residents in the vicinity of the hospital have appealed to the Royal College of Physicians, which has passed the following resolution:

> That in the opinion of this College any hospital for patients suffering from advanced tuberculosis should be in the open country, well removed from town or village. The President and Fellows, therefore, consider that the proposal to erect a hospital for advanced cases of tuberculosis in the grounds of the Hospital for Incurables, surrounded as these grounds are by terraces and public institutions, would constitute a danger to the health of those dwelling in the neighbourhood, and, furthermore, would be against the best interests of the unfortunate subjects of the disease who would be admitted there.

In view of this strong expression of opinion, the governors of the hospital will no doubt reconsider their position. Their present attitude is that the objections raised against the scheme need not be considered, inasmuch as the scheme only consists of an extension of the work which has been carried on in the hospital for over a century without complaint.

THE HOUSING QUESTION IN DUBLIN.

The subject of the housing of the poor has lately attracted much attention in Dublin, which, like most other ancient cities, is full of "slums." Recently a special "Housing Committee" of the Dublin Corporation was appointed. Much, however, is to be said in favour of the suggestion that a Viceregal Commission should be appointed to investigate the whole problem. Such a commission would have the advantage of being entirely independent, and the public attention necessarily excited by the holding of such an investigation would, it is thought, probably produce immediate results in the way of betterment of existing conditions.

RICHMOND NATIONAL INSTITUTION FOR THE BLIND.

The annual report of this institution contains the disappointing news that in consequence of inadequate financial support it has been necessary to make numerous reductions during the past year. In future the brushmaking business can only be carried on on a greatly reduced scale, but fortunately the basket-making and upholstery departments will be maintained as before. The committee has succeeded in obtaining some subscriptions from boards of guardians throughout the country in aid of outdoor workers, but a considerable deficit still exists. The institution is a most deserving one.

KING EDWARD'S CORONATION FUND FOR NURSES.

The object of this fund is to afford relief to nurses who, owing to ill health, are temporarily compelled to give up their work. It has been in existence now for seven years, and numbers 185 registered members. The capital of the fund is about £4,000, the interest on which, supplemented by members' subscriptions and donations from the public, provides the sum available for distribution. Since its inauguration it has succeeded in helping many nurses who would otherwise have been almost destitute as a result of inability to carry on their work.

Scotland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

EDINBURGH HARVEIAN FESTIVAL.

The Oration.

THE one hundred and twenty-ninth Harveian Festival was held in the Hall of the Royal College of Physicians of Edinburgh on May 19th, when the President, Sir Alexander R. Simpson, delivered the Harveian Oration on "Life and its Epiphanies." It is not, said the orator, in his greatest and best-known work, *On the Motion of the Heart and Blood*, that we find Harvey's fullest thoughts on life. He was an evolutionist before Darwin. It is in his less-read work on animal generation that we come more closely on his thoughts on the problems of existence. Each Harveian, as he comes on these thoughts of the master, recognizes them as the expressions of one of the sanest of minds. Harvey objects to those who, when they do not comprehend the causes of various effects, refer them to the immediate interposition of the Deity; he also objects to those who teach that "all things may be produced from nothing," and to those who assign a material cause for generation, and deduce the causes of natural things either from the elements concurring spontaneously or accidentally, or from atoms variously arranged. They do not, he says, recognize that efficient cause and divinity of Nature which works at all times with consummate art, and providence, and wisdom, and ever for a certain purpose and to some good end. Life is the cause and not the consequence of organization, as John Hunter pointed out. So also Huxley. The Harveian, then, who puts himself under the guidance of the modern representatives of the magisterial minds whom Dante groups round Aristotle—"the master of them that know"—and it is pleasant to remember that one-fourth of the names he celebrates belonged to the medical profession—the Harveian who finds time to attend a little to the teaching of the modern leaders in astronomy, physics, chemistry, geology, biology, learns that before life has taken on or been taken on by matter there is evidence of the existence and activity of a living one which it would be perversity to ignore. "We cannot," said John Goodsir, "think of a thing but as an existence. We cannot think of a thing except under the condition of time—that is, we are under the necessity of considering it only as a new form of what existed before it. Therefore, we cannot think of it as absolutely commencing *per se*." The first epiphany of life in a protein molecule, the elusiveness of life, the divergent lines of life, the procession of life, instinct and intelligence, progress in a spiral (John Goodsir's idea), the universe a harmony, a new epiphany of life in man (in man the guardian soma attains the dignity of a trustee) in the appearance of his moral sense and in the intimation of his own immortality and dependence, the universal harmony disturbed by man himself, the aim of life missed, the mending of this in the latest and greatest of life's epiphanies (the Son of Man), Harvey's Creed, were in succession discussed.

Dr. Clouston proposed and Dr. Crawford Renton (Glasgow) seconded a vote of thanks to the orator.

The Dinner.

Thereafter dinner was served. Covers were laid for fifty-four, including Sir John Batty Tuke, Sir George Beatson, Sir Halliday Croom, and the Rev. James Wells, D.D., Moderator Designate of the United Free Church Assembly. The loyal and imperial toasts were given from the Chair. That of "The Imperial Forces" was replied to by Captain J. M. Cuthbert, R.A.M.C. The President then gave "The

Immortal Memory"; Dr. T. R. Ronaldson gave "The Church," and the Rev. Dr. Wells replied; Professor Sir Halliday Croom gave "The President." Drs James and Fordyce sang, and Dr. G. Lovell Gulland gave a humorous "impression." "Floreat Res Medica" closed a happy evening.

ENTERIC FEVER.

Dr. Thomas F. Dewar, Medical Inspector to the Local Government Board, has issued an elaborate report (it covers thirty-five closely printed folio pages) on the epidemic in Saltcoats and parts of the northern district of Ayrshire which occurred in the last three months of 1910 and the first two months of 1911. There were 200 cases and 25 deaths, a case mortality of 12·5 per cent. The outbreak is attributed to the supply of milk from a dairy within the northern district of Ayrshire, where the farmer took to bed on September 23rd, 1909. On September 29th his blood gave a negative reaction with the Widal test, but Dr. Brown of Dalry, on October 4th, notified the case as enteric fever on clinical grounds, and despite the negative report on the Widal test intimated to him some days previously. The farmer was removed to Kilwinning Joint Hospital on the day of notification. Dr. Dewar asks three questions: (1) Were reasonable preventive measures taken before October 4th? (2) Were proper precautionary measures taken thereafter? (3) Were these precautions successful? He makes the following comments:

> Let it be clearly understood that these two latter cases stand apart; the answer to the one depends nowise upon the answer to the other. Right is not made wrong by the supervention of unpleasant consequences; no more than wrong is to be exculpated should no ill effects supervene. Extensive as has been the epidemic, grave as are its effects in loss of life, and hardly as its cost will press upon the ratepayers, it is yet a story of comparative simplicity. The questions above enumerated are practically the only questions at issue. This report is prepared to enable those to whom it is to be submitted to draw their own conclusions and to formulate their answers for themselves.

Writing of the inadequate precautions at the dairy farm, Dr. Dewar says:

> There is grave reason to fear that, between September 29th, when Dr. Brown suspected Allan Caldwell's (the farmer) illness to be possibly of the nature of enteric fever, and October 4th, when, that suspicion being confirmed, the patient was removed to hospital, no adequate precautions had been taken at the dairy to safeguard the consumers of the milk from the risk of infection. It is said that persons who nursed Allan Caldwell were employed in handling the milk; they were certainly living in common and sharing meals with those who did. Allan Caldwell took to bed on September 23rd. Thus for ten or eleven days there was the possibility of infection by this channel; as the disease progressed, that risk would daily tend to increase. . . . It is true that methods of common cleanliness, if faithfully and invariably performed, will go a long way towards securing safety to the milk-consuming public, even when the infection of enteric fever is about. Milk cannot acquire the infectious property until there reaches it some disease-bearing excretion from the bowels or bladder of a patient. But apart from or in addition to ordinary measures of care and cleanliness, special precautions should be taken in cases such as this; and should have been taken in this case. A person who is ailing, or suffering from unwonted weakness or weariness, should not only refrain from handling milk or dealing with it in any way, but should be removed from all opportunity of contact or even indirect communication with it. If the malady be characterized by feverish symptoms, persistent headache, or diarrhœa, the requirement becomes urgent in the public interest. Several of those indications were present in this case; but it does not appear that the necessary precautions were taken.

GLASGOW ROYAL INFIRMARY.

The solicitors for the Glasgow Royal Infirmary have received intimation of the King's approval of the grant of a supplementary charter providing for the reconstitution of the board of management. The present board consists of thirty-five members, and while this number will remain unchanged, the number of working men representatives is increased from two to four. Two representatives are to be nominated by the Senate and Court of the university in lieu of the professor of anatomy and the professor of medicine, and the representative of the "Faculty of the College of Glasgow"; members of Parliament for the city cease to be *ex officio* members, the representative from the Church of Scotland is deleted, and the Town Council send three representatives in place of one. Other alterations are made on the procedure and powers of the board.

VICTORIA INFIRMARY, GLASGOW.

The Victoria Infirmary has been extended by the addition of six day-rooms to the old wards which face towards Queen's Park. This makes the original ward blocks uniform with the blocks on the other side of the infirmary, which are already equipped with day-rooms. Balconies have also been added on each of the three floors. The additions have involved an expenditure of about £5.000.

INVERNESS-SHIRE.

Dr. MacDonald, M.O.H. for the County of Inverness, states in his annual report that the death-rate and birth-rate in the county are both decreasing. Notifiable infectious diseases numbered 137 as compared with 153 in the previous year. The total zymotic death-rate was 0·415 as compared with 0·354 in the previous year. No cases of small pox were notified, but a slight outbreak of typhus fever occurred. There were 376 marriages in 1910 as against 367 in the previous year; 375 persons died over 70 years of age, 204 between 70 and 80, 134 between 80 and 90, and 37 between 90 and 100. Whilst one or two had nearly reached a century, no death was registered of a person dying of 100 years or upwards.

India.

[*FROM OUR SPECIAL CORRESPONDENT.*]

REPORT OF THE SANITARY COMMISSIONER FOR 1909.

THE report for the year 1909 was submitted by the late Lieutenant-Colonel John T. W. Leslie, I.M.S., Sanitary Commissioner with the Government of India, whose recent death has deprived the Government of a most able officer and inflicted a serious loss on medical and sanitary science and administration in India. This report is somewhat shorter than most of its predecessors, but it is none the less valuable on that account, giving evidence, as it does, of progress in the scientific study of Indian diseases, their nature and causation, of increased laboratory work, of careful study and clear exposition of additions to medical and sanitary knowledge, and of endeavour to appraise the value and interpret the meaning of Indian statistics. The figured statements and tables appended to the report have been drawn up by Major S. P. James, M.D., I.M.S., and present no material departures in plan from previous records.

General Character of the Year.

The year 1909 inherited from its predecessor a bequest of depressed vitality and unfavourable health conditions, due to the excessive and ill-distributed rainfall, which caused in Northern India a serious outbreak of malarious disease, and resulted over a wide area in destruction of crops and in scarcity and dearness of food. The influence of these circumstances, which were fully described in the BRITISH MEDICAL JOURNAL (vol. i, 1910, pp. 1302, 1360), affected adversely the public health in several provinces in a year otherwise exceptionally fortunate in its climatic, political, and social conditions. The rainfall of 1909 was generous, the total precipitation on the plains of India being above normal by 2.1 in., or 5 per cent. The monsoon fall was plentiful and well timed and distributed, but in some provinces the early rains were in defect, and in Madras there was a partial failure of the later N.E. monsoon. In Lower Burma there was an excess, and in Upper Burma a defect. In those provinces where the early rains were defective there was a partial failure of spring crops, and some consequent scarcity and dearness, but the autumn crops were everywhere abundant and prices moderate. Conditions of temperature and humidity

were, with some local variations, normal. Bengal was visited in October by a cyclonic storm, which was, as usual, followed by a severe outbreak of cholera. Peace prevailed throughout the year, and there was no disturbance of civil tranquillity and prosperity.

Vital Statistics of the General Population.

No information is given regarding alterations in the agencies for recording births and deaths, or measures adopted for verifying the accuracy of returns, whose value may therefore be presumed to have undergone no material change. The birth-rate was 36.65 per 1,000, against 37.78 in 1908 and a quinquennial mean of 38.64. The decrease in rates was most marked in provinces which had suffered most severely from malaria in the previous year. The death-rate was 30.91—7.30 per mille lower than in 1908, and 4.88 than the quinquennial rate. The birth-rate exceeded the death-rate on the whole by 5.74 per 1,000. The excess amounted to 18.84 in the Central Provinces and 11.3 in Madras, but there was a defect of 4.02 in the United Provinces and 13.15 in Ajmere-Merwara. In this latter province the death-rate was 50.94, and in the United Provinces 37.34. As usual, urban rates were mostly higher than rural, and the death-rates of males higher than those of females. The death-rate of male children calculated on births was 260.72, and of female 226.57. The figures of the preceding year were 249.6 and 241.4.

Prevalent Diseases.

There was a marked decline in all the registered causes of mortality except plague, but the increase in it only amounted to 0.14 per 1,000. Of the total mortality, 64 per cent. was attributed to "fevers," 2 to plague, 3 to cholera, 3 to bowel complaints, and 1.5 to small-pox, leaving a balance of 26.5 for "other causes." The figures of 1908 were 63, 1, 7, 3, 2, and 24. The term "fevers" is still very vague, and even in gaols *post-mortem* examination does not confirm a diagnosis of malarial fever in more than about 75 per cent. of cases diagnosed as such. Our knowledge of Indian fevers is still very imperfect, and no subject demands more persistent and searching investigation. The mortality ascribed to "fevers" in 1909 was about normal, the rate being 19.5 against 23.96 in the preceding year. It would have been less except for the dregs of 1908, especially in the United Provinces, Punjab, and Ajmere-Merwara. Fevers were in excess in Eastern Bengal and Assam, but a special investigation indicated that only 36 per cent. were malarious. Special inquiries and malarial surveys were conducted in the United Provinces. The Province of Madras returned a fever rate of only 7.3 per 1,000. Quinine was largely distributed, and the sale of the drug underwent increase. Efforts are being made to methodize and promote the latter. The mortality of kala-azar in Assam was slightly less than in 1908.

The number of deaths from plague was 178,808 against 156,480, the death-rate being 0.64 per 1,000 against 0.50. There was a rise in 6 of the 12 provinces, but not to great excess in any; 593,164 doses of antiplague vaccine were issued by the Bombay bacteriological laboratory, being an advance of 59,849 doses. Some evidence of increasing popularity of inoculation is furnished. A disquieting and portentous circumstance was the increase of plague towards the close of the year. The results of recent inquiries by the Advisory Committee for plague investigation in India are detailed, the principal conclusions being: (1) That in nature plague is spread among rats by the agency of rat fleas; and (2) that in the great majority of cases during an epidemic of plague man contracts the disease from plague-infected rats through the agency of plague-infected rat fleas. The preventive measures adopted in the affected provinces were rat destruction, evacuation, inoculation, and disinfection. In the Punjab an auxiliary staff of workers was chosen from among the leaders of the people. In Bombay "inoculation is performed by travelling inoculators and private medical practitioners, as well as at all civil hospitals and dispensaries."

The number of deaths registered as cholera was less than one-half that of 1908, the rates being 1.05 and 2.61 per 1,000. In Bengal, the United Provinces, and Madras there was a remarkable decline. In Upper Burma, Eastern Bengal, and Assam and Bombay the rates were comparatively high. There was a marked decrease in cholera deaths in Assam tea gardens (2.53 against 5.34; provincial rate, 2.40). Evidence is given regarding the spread of the disease in the Punjab, Bombay, and Central Provinces by pilgrims. Permanganating wells is favourably reported on. The mortality caused by small-pox was about the average. The death-rate in towns was higher than in rural areas, and 5.3 per cent. of the victims were children. In Madras, however, rural rates exceeded urban in consequence of compulsory vaccination in municipalities. There was a considerable fall in the mortality caused by bowel complaints in all provinces except Eastern Bengal and Assam, the North-Western Frontier Province, and Upper Burma. In some Assam districts very high rates were recorded.

The Gaols.

Notwithstanding the salubrity of 1909, the sickness and mortality of Indian gaols did not undergo so marked a reduction as might be expected or proportionate to the improvement which took place outside. The Sanitary Commissioner points out that while a bad year weeds out the weakly—especially the very young and the very old—among the general population, thus leaving a robuster residue, the gaol weaklings—mostly adults—are kept alive by treatment and contribute to the sickness and mortality of a succeeding year. Prevalence of epidemics outside and the development of mortal diseases, chiefly tubercle, inside further complicate the comparison. Excluding the Andamans Settlement, in which the health of prisoners was exceptionally bad, there was a distinct change for the better in the vital statistics of gaols. The prison population fell from 101,336 to 99,104, the sickness rates from 646 and 29 to 618 and 28, and the death-rate from 24.17 to 22.85. The latter ranged from 29.97 in Eastern Bengal to 15.59 in the Central Provinces. Among convicts, while there was more sickness in district gaols (short term), the mortality was higher in central gaols (long term), owing to excess—mainly due to phthisis—occurring among prisoners of more than one and less than seven years' confinement. Sickness was mainly due to malaria, dysentery, abscess, ulcers and boils, diarrhoea, and chest diseases, and mortality to dysentery, phthisis, and pneumonia. The admissions from malarious disease were fewer, but the deaths rather more numerous, many of them being survivals of the previous year. Prophylactic measures continue to be diligently resorted to. Experiments made in the gaols of Peshawur and Dera Ismael Khan indicated a reduced incidence of malaria in quinine-dosed gangs as compared with other gangs similarly conditioned but not dosed. At Jubblepore inunction with kerosene oil to prevent mosquito bites was tried, but it was found to cause sores and inflamed eyes. There was a decline in admissions and deaths from dysentery, but a rise in diarrhoea, especially in the United Provinces and Bengal. The death-rate from tubercle of the lungs was 3.72 against 3.76; that of the European army being 0.13, and of the native army 0.39. The disparity is very striking, and, making due allowance for the influence among troops of invaliding, suggests more strenuous preventive measures than appear to be taken. The death-rate of pneumonia was 3.60, against 3.24; the rates of the armies being 0.31 and 1.88, an excess in gaols deserving special notice and action. The admission-rates from cholera in the three bodies were 1.8, 0.2, and 0.2; from small-pox 0.4, 0.3, and 0.3, showing an excess in gaols where reasonably a defect might be anticipated. There were 14 cases of plague, against 5 and 18 in the [two] armies, and 86 cases of enteric fever, with 21 deaths. There were 32 admissions from cerebro-spinal fever, with 18 deaths; 18 from beriberi, with 1 death; 3 from kala-azar, with 1 death; 2 from Malta fever not fatal; 3 from relapsing fever, and 23 from typhus fever, with 7 deaths. There were

4 fatal cases of rabies. The sanitary condition of the Andamans was bad. There was an excess of rain, and all communities suffered. The admission-rate of convicts was 1,761, and death-rate 43.18. Malaria and dysentery were very deadly. The death-rate of phthisis was 7, and of pneumonia 6.24. The excessive sickness and mortality are ascribed to abnormal climatic conditions.

European Troops.

The strength of the European army of India was 71,556, of which an average of 12,586 occupied hill stations and 4,186 hill convalescent dépôts and sanatoriums; 2,135 were marching, 601 at the Deolali dépôt awaiting transfer, and 1,120 stationed at Aden. The sickness, death, and invaliding rates were unprecedentedly low. The admission-rate was 716.9; the constantly sick rate 40.3, the death-rate 6.25, and the invaliding rate 9.07, against 839.5, 45.7, 9.78, and 15.64 in 1908 and 879.4, 54.0, 10.51, and 27.91 in the quinquennium 1903–07. The Sanitary Commissioner advances the opinion that the great improvement in the health of the army is largely due to personal or individual hygiene—that is, to the sanitary education of the soldier and more intelligent appreciation thereof and better obedience to the laws of health. The Northern army was more unhealthy than the Southern. There were only 12 cases of cholera with 7 deaths, and 19 of small-pox with 1 death. There was an abatement of malaria, but a large number of admissions in the early part of the year were relapses from 1908. Preventive measures are in full operation, careful "after-treatment" being found to be of great advantage. The detection and segregation of "malaria carriers" is a hopeful practice, and the use of mosquito nets is on the increase. The heading, "Pyrexia of Uncertain Origin," evidently included a variety of pyrexial maladies, among them "phlebotomus or sandfly fever," to which a separate heading is in future to be assigned. There was only 1 admission for Malta fever and 5 for "kala-azar." There was a remarkable fall in the incidence and mortality of enteric fever, which has shown a tendency to abatement in recent years. The case-mortality was also lower. This improvement is considered to be due to a better understanding of modes and channels of infection and the exercise of more careful prevention. The subject being of prime importance is treated at great length, and recent researches are summarized very fully. There were fewer admissions, deaths, and invalidings for phthisis, which has been declining of late years. Pneumonia and dysentery were less fatal, and there were fewer deaths from hepatic abscess. The improvement in venereal diseases continues. The admission and death rates of officers, women, and children were all lower than in the previous year.

Native Troops.

The strength of the native army was 131,627, an increase of 4,052. Of this number, 24,735 were located in hill stations and 9,794 marching; 1,099 occupied Aden and Perim and Persian Gulf stations; 716 were stationed at Colombo, 742 at Singapore, 792 at Tientsin, and 1,569 at Hong Kong. The sickness, invaliding, and death rates were lower than in any year of which there is a record. The death-rate was 5.74, or, including absentees, 6.42. Of the total deaths, 33.5 per cent. were caused by pneumonia, 7.7 by enteric fever, and 6.9 by phthisis. The Northern army was much less healthy than the Southern. The statistics of troops serving beyond Indian limits were favourable. Cholera and small-pox were less prevalent. Fewer cases and deaths were attributed to malaria, but changes in nomenclature and practice and prophylactic measures have vitiated comparison with former years. The entries under the heading of "Pyrexia of Uncertain Origin" represent maladies of various type, such as "sandfly fever" and other thermal complaints of anomalous descriptions demanding further study. Eleven cases of "kala-azar" were returned and 9 cases of relapsing fever, only 2 of Malta fever, and 16 of plague. The removal of the heading of "remittent fever" has given rise to an increase of enteric fever, of which 284 cases with 57 deaths were registered. The cases occurred in 106 regiments in 62 stations. There was a slight decrease in scurvy and an abatement in the admission and death rates from phthisis. Fewer deaths were caused by pneumonia, dysentery, and diarrhoea. There were 6 deaths from abscess of the liver, against 34 in the European army. The prevalence of venereal diseases was about one-fourth of that among European troops. There were only 3 admissions from beri-beri.

Vaccination.

Although vaccination must, for India as a whole, be pronounced inadequate, it must be remembered that results vary exceedingly in different parts of the empire as regards efficiency and success, and that continued efforts to raise the standard of backward areas to the level of the better protected is the best way of obtaining general improvement. There was a decline of 30,000 vaccinations in 1909, representing a serious falling-off in primary operations but a rise in secondary. The proportion of the population vaccinated is calculated to be 35.55, the extremes being 56.7 in Coorg and 27.45 in the United Provinces. Taking 40 per 1,000 to be the Indian birth-rate, only 44.20 per cent. of infants were successfully vaccinated. The arrangements for the supply and distribution of lymph are undergoing improvement.

Sanitary Administration and Work.

The provincial details which constitute this section of the report indicate increased diligence and effort in sanitary reform. The number of large waterwork and drainage schemes referred to is remarkable. Governments are aiding these constructions by grants in aid. The amount of money spent by municipalities and district boards on current sanitary work is very considerable. A commendable step has been taken in the Punjab by adding two Indian gentlemen to the sanitary board. The United Provinces employed Dr. Gilbert Fowler of Manchester to report and advise on the disposal of sewage. The sale of manure is a substantial item in Punjab municipal revenues. Continued attention is being devoted in Madras to the education and training of sanitary inspectors.

Miscellaneous.

The Mecca pilgrimage was made under the same orders, and without special disaster. Pilgrim ships were freed of rats by the Clayton process. Only one case of plague, and no case of cholera, occurred in the Hedjaz, but small-pox was epidemic there, and followed the pilgrims on their return voyage, which is much more fatal than the outgoing, bearing evidence of the hardships and privations which pilgrims endure. An interesting summary is given of the transactions of provincial laboratories in which diagnostic and research work is on the increase. The results of special inquiries regarding plague, dysentery, gaol dietaries, malaria, kala-azar and oriental sore, and epidemic dropsy and beri-beri, are also indicated and a list given of scientific publications issued under the authority of the Sanitary Commissioner.

Canada.

THE ALEXANDRA HOSPITAL, MONTREAL.

THE mixed character of the population of Canada is clearly evidenced in the fifth annual report of the Alexandra Hospital, Montreal, an isolation hospital. Of the 820 patients who passed through the wards last year, 544 were born Canadians, 95 English, 33 Scottish, 21 Americans (U.S.), 20 Irish, 18 Russians, and 10 Newfoundlanders; in 40 cases the birthplace of the patients was unknown, and as many as sixteen countries furnished the balance. The diseases treated were in nearly equal proportions—diphtheria, measles, and

scarlet fever; the death-rates from the three being: Diphtheria, 6.46 per cent.; scarlet fever, 5.36 per cent., and measles 3.09 per cent. There were also 63 cases of erysipelas and a fair number of cases in which two or more infectious disorders were combined. The medical superintendent is Dr. T. A. Lomer.

PRODUCTION AND SALE OF MILK.

An Act has been passed in Ontario empowering any municipality—which term does not include a county—to make by-laws respecting the production and sale of milk, and to restrict sale operations to licensed persons. Each municipality is authorized to create its own milk standard, but in no case must the milk contain less than 12 per cent. of solids, of which 3 per cent. must be butter-fat. If the milk has been altered from its original condition by the addition of preservatives or the removal of butter-fat, or by other means, the fact must be clearly and distinctly advertised. The terms "certified" and "pasteurized" can only be applied to milk which conforms to certain stated conditions. In the case of "certified," one of these is that the milk shall be from cows semi-annually submitted to the tuberculin test and found free from tuberculosis, from a farm the herd of which is inspected monthly by a veterinary surgeon, and the employees of which are examined monthly by a physician; in addition, it must contain not more than 10,000 bacteria per c.cm. between June and September, nor more than 5,000 bacteria per c.cm. between October and May.

Queensland.

[*FROM OUR SPECIAL CORRESPONDENT.*]

LUNACY.

THE annual report for the year 1909 of Dr. H. Byam Ellerton, who was appointed Inspector of Hospitals for the Insane for Queensland in May of that year, shows that on December 31st, 1908, there were 2,185 patients in the hospitals, and on the corresponding day of 1909 there were 2,227, giving an increase for the year of 42 as compared with that of 115 for the previous year. In this State the insane are segregated in the three hospitals of Goodna, Ipswich, and Toowoomba, and three reception-houses. Of the three hospitals or asylums, until 1909 Ipswich was administered from Goodna, of which Dr. Byam Ellerton is the Medical Superintendent, but at the time of Dr. Ellerton's report the appointment of a medical superintendent for Ipswich was imminent. Following the plan adopted by Dr. Ellerton in his report, the medical statistics concerning the three asylums will be given separately hereunder, but the following combined statistics may be noted. During the year 369 in all were admitted to all hospitals, of whom 328 were first admissions. The admissions were greater by only 9 than those of the previous year, but were 29 greater than those of 1907. The total number under care during the year was 2,554 and the average number daily resident 2,173. During the year 141 were discharged as recovered, giving a recovery-rate on the admissions of 38.21 per cent. (average recovery-rate for the half-century ended 1910, 40.55 per cent.), 52 as relieved, 4 as not improved, and 1 as not insane. Also 129 died, giving a death-rate on the average numbers resident of 5.93 per cent. Death-rates in Queensland asylums are low, in only one year since 1883 reaching 9.03 per cent.

Goodna Asylum.

At this asylum on January 1st, 1909, there were in residence 1,251 patients, and on the last day of the year 1,247. During the year 310 were admitted, of whom 271 were first admissions. Of the total 96 were white natives of Queensland and 4 aborigines, whilst 29 were natives of other Australian States; Great Britain contributed 140, of whom 68 were born in Ireland, 60 in England and Wales, and only 12 in Scotland; and of the remainder 17 were German, and the rest, in small numbers, natives of other parts of many countries. As to the forms of mental disorder, 139 were cases of mania; 52 cases of melancholia; 87 of senile and secondary dementia; 13 of general paralysis; 9 of epileptic insanity; 19 of congenital imbecility; and 1 not insane on admission. The table of etiological factors shows that alcohol was assigned in 49, or 16 per cent.; venereal disease in only 4, and other toxins in 7; critical periods in 38; epilepsy in 10; and gross brain lesion in 1; child-birth in 16; various bodily illnesses in 72; and mental stress in 31. Hereditary influences were ascertained in 22, and congenital defect existed in 21, whilst in 36 no cause could be assigned.

During the year 106 were discharged as recovered, giving the recovery-rate on the admissions of 34.19 per cent.; 38 as relieved, 2 as not improved, 1 as not insane, and 74 were transferred. During the year also 93 died, giving the death-rate on the average numbers resident of 7.69 per cent. The deaths were due in 24 to cerebro spinal diseases, with only 8 from general paralysis; in 8 to diseases of the heart and blood vessels; in 24 to respiratory diseases, including 1 death from asphyxia (choking); in 11 to diseases of the digestive and genito-urinary systems, and in the remainder to general diseases. Altogether, there were only 6 deaths, or 6.3 per cent. of the total deaths, from tuberculosis, notwithstanding the fact, commented upon by Dr. Ellerton, that the wards were overcrowded and some blocks out of date and unsuitable for the treatment of mental cases.

Toowoomba Asylum.

The annual report of Dr. Jas. R. Nicoll shows that at this asylum on January 1st, 1909, there were 733 patients on the register, and on the last day of the year there were 740. The total cases under care during the year numbered 816, and the average number daily resident 737.

During the year 83 were admitted, of whom 65 were direct admissions and 18 transfers. In 19 the attack was a first attack within three months and in 8 more within twelve months of admission; in 11 not first attacks with twelve months; in 15, whether first attacks or not, the attacks were of more than twelve months' duration, and in the remainder the duration was unknown. As to nationality, 27 were natives of Queensland (no aborigines) and 19 of other Australian States; 13 were born in England and Wales, 12 in Ireland, and only 1 in Scotland, whilst of the remaining 11, 7 were natives of Germany. The direct admissions were classified according to the forms of mental disorder as follows: Mania of all kinds, 30; melancholia of all kinds, 11; senile and organic dementia, 10; delusional insanity, 8; insanity with epilepsy, 3; general paralysis, 1; and imbecility, 1. As to probable causation, alcohol was assigned in 8, critical periods in 7, diseases of the nervous system and other bodily diseases in 8, and mental stress in 5. An insane heredity was ascertained in 8, and an alcoholic or neurotic heredity in 3 more. During the year 33 were discharged as recovered, giving a recovery-rate on the direct admissions of 50 per cent.; 12 as relieved, 2 as not improved, and 1 was transferred. During the year also 28 died, giving a death-rate on the average numbers resident of 3.8 per cent. All deaths were due to natural causes, and only 2 were due to tuberculosis.

Ipswich Asylum.

In this asylum on January 1st, 1909, there were 201 patients, and on the last day of the year 240. The total cases under care during the year numbered 257, and the average number daily resident 237. During the year 56 patients were transferred to the asylum from Goodna—of which until then it was a branch establishment—and these were composed of 31 cases of mania, 2 of melancholia, 2 of dementia, and 2 of imbecility. As to the causation of the insanities in these cases, alcohol had been assigned in 11, venereal disease in 1, fevers in 2, old age and ill health in 2, mental stress in 2, and in 25 no cause had been assigned. Hereditary influences had been ascertained

in 10. During the year 2 were discharged as recovered, 2 as relieved, 5 were transferred, and 8 died, the deaths all being from natural causes.

Reception Houses.

Up to the present the reception houses in Queensland have been merely resting places where patients from outlying districts could be temporarily detained until a sufficient number had been collected to be sent to one of the hospitals for the insane. Now, however, Dr. Ellerton proposes to submit certain amendments of the existing Lunacy Act whereby the reception houses will be done away with and sanctioning the admission of early cases of insanity into mental wards in general hospitals for a limited period on the authority of two medical certificates only, without any magistrates' or justices' orders.

Cost.

The net cost per patient per week at Goodna was 8s. 2d., at Toowoomba 8s. 3d., and at Ipswich 6s. 4d., or an average of 7s. 7d. per week.

Straits Settlements.

[*FROM OUR SPECIAL CORRESPONDENT.*]

THE WORK OF THE MEDICAL DEPARTMENT.

THE Principal Civil Medical Officer, Dr. W. Gilmore Ellis—who succeeded Dr. McDowell—has just issued his first annual report. It covers the year 1909.

The mean population, which for 1901, calculated from the census returns, was 572,249, is estimated at 636,691 for 1909. The estimated increase is based entirely on the increase between the census figures of 1891 and 1901, the better means of estimating from the number of births and deaths and immigration and emigration not being practicable as records for the latter are not reliable.

The birth-rate has declined in all the Settlements, being 26.69 per 1,000 as against 28.75 in the previous year. The death-rate is the lowest registered since 1899; in 1908 it was 46.78 per 1,000; in 1909 it was only 38.56. Of the number of deaths registered in 1909, 4,714 were among infants under 1 year of age, which represents a percentage of 19.7 of the total. It was hoped that the Government would bring in a Midwives Bill during the year, but nothing was done in that direction. During the year, however, some native women were being trained in the maternity wards of the General Hospital. These wards are slowly increasing in favour amongst the Chinese, and with more cases it is hoped the work will progress satisfactorily and bear fruit in the future.

There were fewer cases of plague during 1909 in the several Settlements, only 5 cases occurred, all of which were fatal. Cholera also showed a marked decrease—84 cases with 76 deaths, as against 198 with 178 deaths during 1908.

Beri-beri still claimed a number of victims, no less than 1,506 persons dying from that disease in 1909 out of a total of 2,118 cases. The results from the use of parboiled rice continue to give satisfaction, and the native patients at the several hospitals are exclusively fed on cured rice. Work on the etiology of this disease has been in progress throughout the year at the Research Institute, Kuala Lumpur, under Dr. Fraser. Dr. Ellis remarks that a dispatch had been sent through the High Commissioner to the Secretary of State transmitting a report recording the results. In the present state of knowledge, however, it has not been found feasible to advise Government as to any legislative measures of a preventive nature, although the results of work at many different laboratories seem to promise that this must soon be possible.

As in other parts of the world, the death-rate from phthisis is high, no less than 2,659 deaths being registered. This serious mortality, the report states, is likely to continue until some practical measures are put in force in the larger towns to lessen overcrowding, improve ventilation, and remove advanced cases.

The number of cases of ankylostomiasis amounted to 335, compared with 192 in 1908, 80 cases being fatal. Over 30,000 cases were treated in the various hospitals throughout the Settlements, with a percentage of 12.01 deaths to the total treated. The total number of vaccinations performed throughout the colony in 1909 was 12,854.

In connexion with the Medical School there are now 72 full-course students, compared with 58 in 1908, studying for the L.M.S. diploma, of whom 17 are in their fifth year.

Much good work is being done in connexion with the pathological department of the colony.

Correspondence.

PARATYPHOID FEVER.

SIR,—Permit me, as one familiar with the scientific work being done in India by officers of the Royal Army Medical Corps and also conversant with the statistical facts relating to both the European and Indian armies, to enter a plea for clear thinking as to the use of the term "paratyphoid fever." From recent literature on this subject there appears to be a definite tendency at home to apply the term "paratyphoid fever" to cases of infection by the micro-organism known as *Bacillus paratyphosus* B. Concurrent with this, there is a tendency to overlook the infection by the closely allied micro-organism known as *Bacillus paratyphosus* A. This latter attitude may be due to the apparent infrequency of paratyphoid A infection in England or Europe. Before the nomenclature becomes crystallized and passes into general use by the profession, in the sense suggested by the recent literature published, it would be as well for the profession to realize that, in India and also in South Africa, there is recognizable a definite clinical entity caused by the *Bacillus paratyphosus* A. This clinical entity is a fever or pyrexia of the continued type. This view is worth bearing in mind, that it is to this continued fever, often of comparatively short duration and marked by a low case-mortality rate, caused by the *Bacillus paratyphosus* A, that the term "paratyphoid fever" should be applied, and applied only, at least for the present. Practically all the Indian cases are instances of infection by the A bacillus, and so far no case is diagnosed in the army unless the incriminating micro-organism has been isolated from the case.

Without going into the question of what is meant by a *Bacillus paratyphosus* B, or discussing how confusion has arisen, or the methods by which confusion can be avoided, as to whether a given micro-organism is *Bacillus paratyphosus* B or *Bacillus suipestifer*, it appears desirable to recognize that infections by these micro-organisms are really not "fevers" as ordinarily understood, but rather explosive infections of the nature of an acute enteritis, commonly the outcome of what is called "food poisoning." As explained, the infection by the A bacillus conforms to quite a different type, and is best described as "paratyphoid fever." From this point of view, it seems desirable that a confusion of ideas be avoided and that, failing better terms of expression, we limit the use of the expression "paratyphoid fever" to cases of fever in which the causative micro-organism is the *Bacillus paratyphosus* A, and describe as "food poisoning" those in which the causative micro-organism is either the *Bacillus paratyphosus* B, or the *Bacillus suipestifer*, or the other closely allied organism, the *Bacillus enteritidis* of Gaertner.

It must be admitted that we have still much to learn regarding all these infections, and subsequent investigation may compel us to modify our conceptions as to the whole group, but speaking in the light of our present knowledge, it is submitted that the views here outlined afford the safer and the wiser attitude to adopt. A considerable mass of evidence is accumulating, and much knowledge is being acquired in India as to the prevalence, symptoms, epidemiology, and identity of the causative micro-organism of paratyphoid fever. In fact—may I be pardoned for saying so—there is a small group of officers of the Royal Army Medical Corps working in India who probably know more

about infection by the *Bacillus paratyphosus* A (paratyphoid fever) than any one in Europe. We are hopeful that when their work is made public the present ambiguities may be removed.—I am, etc.,

Simla, May 4th. R. H. FIRTH, Col., R.A.M.C.

THE PREVENTION OF MALARIA.

SIR,—In your interesting and impartial review (May 13th) of the *Prevention of Malaria*, by Professor Ross, C.B., you suggest that a school is "arising in India" which, although "not openly hostile," nevertheless would oppose the views advanced by that authority. Your reviewer has probably assumed that, as a result of prolonged experience in that country, there is a tendency to adopt opinions that are not held in other parts of the world. Deductions formed under such circumstances would, doubtless, be of value; and due weight would be given them by sanitarians. But it happens that this attitude is founded upon, and dates from, no better practical experience than that afforded by the haphazard and incomplete experiments of 1902–3 at Mian Mir, the financially starved efforts of 1904, and the "not *openly* hostile" opposition which has followed their outspoken criticism by Professor Ross. In the interval no practical effort has been made which would justify the medical profession in India in relying "for the country at large" solely upon quinine prophylaxis.

The recent appearance of increased vitality in this policy is in reality due to the scheme by which "The Committee for the Study of Malaria in India" (they having modestly renounced the title of the "Scientific Committee" with which they were formerly credited) have been endowed by the Government of India with the power to "*direct* and co-ordinate" investigations as to malaria, throughout the one and three-quarter millions of square miles of India. As this decision was communicated by the Government of India at the Antimalaria Conference in 1909, the natural inference has been that the members proposed this autocratic method of administration, and endorsed the peculiar views of the officers already selected for the purpose. The conference was, however, given no option in the matter. Sanitary Commissioners with Local Governments being thus thrust aside, and the helm placed in the hands of a committee with a predetermined policy, their diplomatic skill would be weak indeed if they were not able to guide the sanitary ship in the route they would desire. But consultation with all medical representatives of Local Governments at this conference left no doubt in my mind that professional opinion in India—as elsewhere—whilst recognizing quinine prophylaxis as a desirable adjuvant, where appropriate and practicable, would rely upon minor and major works directed towards "mosquito reduction" as of prime importance where permanent results are desired.—I am, etc.,

W. G. KING,
Uffculme, N. Devon, May 15th. Colonel, I.M.S. (ret.).

CARDIO-SPLANCHNIC PHENOMENON OF ABRAMS.

SIR,—Dr. Gordon[1] seeks to deny the existence of this phenomenon, and he proceeds to fortify his contention by percussion of the right heart border, and the theoretic observation that the posture of the heart must be influenced by gravity.

The phenomenon, in brief,[2] is as follows: If the lower sternal region—that is, the part of the sternum contiguous to the heart—is first percussed in the erect posture, the sound elicited is one of resonance or hyperresonance, but when the patient assumes the recumbent position a dullness supplants the resonance. This is the attitudinal cardio-splanchnic phenomenon. It is present in health, but absent when the splanchnic vasomotor mechanism is defective.

In describing the phenomenon the undersigned emphasized the importance of employing palpatory percussion.

The determination of the right heart border is neither a positive nor a negative evidence of this phenomenon. Percussion of the right heart border is difficult, and the results are often in accord with the prejudiced preconception of the observer. Again, by the time the right border is percussed the phenomenon has disappeared (*it is very limited in duration*), for the reason that a vigorous right ventricle immediately disposes of the augmented quantity of blood which has been conveyed to it by the change in posture.

The writer has sought to simplify the percussion of the heart by a recently described method,[3] and if Dr. Gordon will execute this method he will find decided discrepancies in his results, although the delimitation of the heart has absolutely no bearing on the phenomenon.

The latter fact is emphasized in my original contribution by the following quotation:

> I have endeavoured by means of the Roentgen rays to determine whether any of the manœuvres already suggested for provoking the cardio-splanchnic phenomenon in any way influence the cardiac diameters, and my investigations show that they do not.

As for the contention that the heart must be influenced by gravity, my skiascopic findings to the contrary permit me to say that the situs of the heart is maintained by pulmonary suction.—I am, etc.,

San Francisco, May 5th. ALBERT ABRAMS.

CONGENITAL APHASIA IN CHILDREN.

SIR,—The descriptions of defective children in Miss McCall's article, under the heading of "Two Cases of Congenital Aphasia in Children" (in the JOURNAL for May 13th, p. 1105), are no doubt of interest. The first case, however, is not one of aphasia, congenital or otherwise, neither is the other if the epithet of "word-deafness" applied to it is correct. Both are examples of defect in the receptive centres—in one case for written and in the other for phonated words—and to such conditions the term "aphasia," carrying with it the significance of imperfection in some part of the central neuromotor apparatus for language, is quite inapplicable. Congenital aphasia is distinctly rare and is apt to be confused with deaf-mutism by the unwary; congenital word-blindness, on the other hand, is a condition the existence of which even school teachers, who are as a class perhaps among the most conservative and unreceptive section of the community, are beginning to realize.—I am, etc.,

Renfrew, May 15th. W. J. RUTHERFURD, M.D.

ENUCLEATION OF THE TONSIL.

SIR,—I would be glad of the opportunity of making some remarks on the discussion that took place at the last Annual Meeting on the anatomy of the tonsil.[4]

I wish to thank Dr. William Hill for remembering my papers sent to the two previous meetings, in which the claim was made that the so-called supratonsillar fossa was absolutely an intratonsillar space. The reason for the delay in this letter is that I have been trying to find reference by Mr. Seccombe Hett in the *Journal of Anatomy*, in which he stated that he had drawn attention to the intratonsillar position of the fossa. I have been unable to get access to it, but I am almost sure that it was subsequent to my first, if not my second, paper, as Dr. Hill says, "no one had been willing to give Mr. Hardie Neil the slightest support." In fact, the punishment meted out to me by Dr. D. R. Paterson was very severe, but, in the light of the now universal recognition of the truth of my contention, it contained a fine compliment—namely: "He traverses in detail views now generally accepted and sufficiently established to have found their way into most modern textbooks." A perusal of his letter (October 10th, 1908) will give a clue to the methods by which he found "that there could be no question of its [the supratonsillar fossa] being outside the tonsil." His researches could not, surely, have been done on either human or mammalian tonsils. His denial of the existence of the capsule is simply inexplicable. However, the newer textbooks will do the subject justice, and consign the statements about the supratonsillar fossa going beyond the tonsil up into the soft palate and down outside the tonsil to the level of the angle of the jaw, to the oblivion suitable to them. Those statements, I think, retarded the proper surgery of the tonsil for years. Photomicrographs of tonsils, fetal, adult, and animal, were sent with my paper in 1908 to the Annual Meeting. Some may be seen in the Royal College of Surgeons and Melbourne University.

As to the surgical anatomy of peritonsillar abscess, a

[1] BRITISH MEDICAL JOURNAL, March 25th, 1911.
[2] *American Journal of the Medical Sciences*, January, 1904.
[3] *La presse médicale*, December 14th, 1910.
[4] BRITISH MEDICAL JOURNAL, vol. ii, 1910, p. 1623.

definite pronouncement was made some three or four years ago by Ballenger, Chicago, as to its relation to the tonsillar capsule. One point not generally mentioned is that when quinsies burst spontaneously they lift the plica from the capsule on the posterior aspect of the tonsil almost invariably high up, just where the plica arches downwards towards the posterior pillar. They do not evacuate through the tonsil itself, but just at the margin of the plica.

If in a subchronic quinsy one incises the soft palate, and after syringing and mopping out the cavity, makes an inspection with a good reflected light, an idea can be obtained of the reason why cases of chronic quinsy ulcerating into the internal jugular artery have been reported. The size and depth of the cavity will astonish one. The line of least resistance seems to be in the direction of the great vessels.

As regards the enucleation of tonsils, the contention that deep anaesthesia is necessary is not in my experience justified. If abolition of the corneal reflex is meant, then that is absolutely unjustifiable, and the bloodless, flaccid condition of the parts mentioned by one gentleman as desirable is a sign of danger, and is to be avoided. As for skill required, I find that junior residents do the operation well after a little tuition. The upper part of the tonsil is readily pulled out until about two-thirds of the way down. Here is found a tough, fibrous band that comes almost horizontally across from behind the anterior pillar. Its origin is further out than the anterior pillar, and it passes into the anterior inferior aspect of the capsule. Over twelve months ago I sent a drawing of it to Dr. Arthur Keith, and he kindly promised to investigate it. This band was mentioned to Dr. Dan McKenzie. After severing by blunt dissection of the vessels away from the capsule as far below this band as possible, I would recommend the use of the Ballenger écraseur, using the blunt edges and remembering that the tonsil is like a blunted almond in shape and that the bulkiest part is above. The most haemorrhage comes from the severing of an artery at the superior anterior, but that has always yielded to a little sponge pressure. There are firm, unyielding walls to press up against, and in any circumstance the artery can be picked up readily and crushed if the patient is put in a suitable position for the operation. I can confidently recommend the placing of the patient on the back with a good firm pillow under the shoulders, the occiput resting on the table near the end. With a suture through the tip of the tongue given to the anaesthetist and an occasional lift of the base of the tongue by an assistant, the tonsillar space is absolutely under control of the operator, who sits facing the end of the table and uses reflected light, and any simple instrument will separate the pillars and allow all recesses to be easily examined. Respiration, if impeded, is freed by pulling the point of the jaw forward. This position is one that only requires a trial to be appreciated. The anaesthetic is delivered by a Junker apparatus through a Probyn Williams modification of Doyen's gag. Every one concerned can readily see the operative field. Sometimes the head of the table may require dropping a notch, but this should be raised and vigorous reflexes allowed to return for the removal of adenoids, if any.—I am, etc.,

Auckland, New Zealand. JAS. HARDIE NEIL.

THE PATHOLOGY AND TREATMENT OF FISTULAE.

SIR,—I see Mr. Drummond, in the course of his remarks (May 6th, 1911, page 1048) on the treatment of fistulae, endows the internal sphincter with powers which it never had nor can have.

He says:

> Much has been written about the damaging results of injury to the sphincter muscles in operating upon fistulae. In this connexion it must be recognized that the internal is the important sphincter muscle, which will explain the fact that the external sphincter may be destroyed without any loss of control. In one case, for example, a patient admitted under the care of Mr. Gordon Watson, it was found impossible to lay open all the tracks without division of the external sphincter in three places, and yet the patient made a good recovery without any loss of control. On the other hand, an operation involving serious injury to the internal sphincter would in all probability be followed by permanent weakness.

Now the case under my friend, Mr. Gordon Watson, does not prove his argument at all. The reason why control was not lost was because the levator ani was uninjured, and it is this muscle which controls defaecation practically entirely. Besides, I was always taught that the internal sphincter was of the unstriped involuntary muscle variety. It is fortunate that we do not rely on our sphincters, either internal or external, for control, as awkward circumstances might arise; anyhow Mr. Harrison Cripps once said, in his inimitable way, in the out-patients' room at St. Bartholomew's Hospital, that he personally was glad he could rely on the levator ani and not on either sphincter for control; and what he does not know of the functions of that part of our anatomy is not worth knowing.

Involuntary uncontrollable muscles, like individuals, are unreliable.—I am, etc.,

Althorpe, Doncaster, May 8th. J. F. ROBERTSON.

APPENDICITIS AND APERIENTS.

SIR,—Mr. Moynihan's experience entitles him to speak with great authority, but I fear his judgement is biassed by what I have termed elsewhere "the fallacy of perspective." He sees only severe cases. The general practitioner, on the other hand, sees too many slight cases; but if the latter is to forbid aperients to all patients with abdominal pain, the general mortality will certainly rise and appendicitis become even commoner. Every one is familiar with cases of caecal accumulation which, relieved by emptying the bowel, might, unrelieved, have gone on to appendicitis.

Further, there is no proof that the aperient is the cause of the gangrene or perforation of the appendix. Probably 95 per cent. of cases have had a preliminary aperient, and if all cases are equally liable to perforation there will naturally be more amongst the majority.

It is conceivable, however, that peristalsis may do harm when there is rigidity of the abdominal wall, and I submit that the true contraindication of aperients is not abdominal pain but abdominal rigidity.—I am, etc.,

London, S.W., April 29th. RALPH W. LEFTWICH, M.D.

ESSENTIAL OR IDIOPATHIC ANASARCA.

SIR,—I believe I was the first to point out that what we used to call idiopathic peritonitis (for which no cause could be discovered) was a mere cloak for our ignorance; and, in spite of the appendix, which is undergoing such radical removal, we have still much to learn as to the cause of many ailments. W. Sbisà, we now learn from our EPITOME, has discovered an idiopathic anasarca, which is only another admission of our ignorance as to the true cause of disease.

From my personal observations I have come to the conclusion that there is much fluid retained in the system (when proper elimination of fluid fails) which is supposed to be fat, because such a form of anasarca does not pit on pressure, and I have no doubt it is that form which is now called essential, or idiopathic anasarca.

It is deserving of further study, and the discovery of its true cause will explain much as to the cause of all disease at present most obscure.—I am, etc.,

Denholm, Hawick, April 29th. JOHN HADDON, M.D.

CHORAL SINGING AS A PREVENTIVE OF TUBERCULOSIS.

SIR,—A year or more ago I read a paper on mental hygiene before a lay community in the London district, pointing out incidentally the value of singing as a preventive of consumption. I gave an instance of a tuberculous family in which I believed the practice of singing had averted cases of the disease; and in our local press I have recommended conductors of choral societies to encourage the practice of sight-singing, for I conceive this to be a useful exercise to the air passages as preventive of oral, throat, tracheal, and lung affections—at least, I fancy singers pay greater regard for their mouths and throats than any other section of society. If we could prove by actual facts that voice production is remedial or really preventive of adenoids in children's throats, of diphtheria, and of diseases of the lungs in general, much would be

done, and at the same time an incentive would be afforded to competitive music, which is now becoming a rage.

I have been endeavouring for some time to point out to conductors of choral societies the healthiness of singing as an inducement to them to collect data as to whether singers are less liable to diseases of the air passages than non-singers. Now, conductors of choral societies might very easily co-operate in the investigation of the measure of the resisting power of the chest to disease by watching the members of their own class, and observing the number of chest affections among them during the session of practice. At the Alton Choral Society's attendances last season I noticed as a member and as a doctor a great freedom from throat and chest affections, so that absentees from this cause were quite the exception; and I wonder if compulsory singing for children in the open air were legalized, whether it would lessen cases of diphtheria, measles, whooping-cough, and scarlet fever?

In Alton one of the co-conductors of the Choral Society is this summer holding fortnightly sight-reading classes. I am instilling this into the members in the hope of keeping their mouths and air passages clear of disease and their mental health in good spirits. And is there a nicer way of sterilizing the air passages and maintaining them in health than singing the notes of the musical scale in harmonious concord in a well-ventilated room or in the open air?

I therefore excuse myself for writing these few lines on the plea of giving a grain of support to that most excellent editorial, "The Voice in Speech and Song," in the JOURNAL of May 20th. That a reprint of that article circulated among the members of the musical profession would be most valuable to them—nay, to the faculty of medicine itself—is my conviction.—I am, etc.,

Alton, May 20th. JOHN FREDERICK BRISCOE.

THE NEWSPAPER PRESS AND QUACKERY.

SIR,—During at least twenty years, on every opportunity and through every possible medium, in the JOURNAL, in the other medical papers, in the *Spectator*—one of the very few periodicals that dare admit the subject to their pages—and latterly before Divisions of the Association, I have been urging that the appointment of a Royal Commission formed the indispensable preliminary step towards medical law reform, the sole means by which the tale could be unfolded in a method beyond controversy, and calculated to compel the attention of the Legislature. Throughout the whole of this time up to now my suggestion has been almost invariably damned authoritatively without even the mitigation of faint praise. It is, however, satisfactory to find this week in your editorial, at page 1284, an indictment of the newspaper press for its attitude towards quackery—an indictment absolutely justified, but not as strong or more fully justified than that formulated by me at the Reigate Division in May, 1909. It is, further, satisfactory to find that the admirable paper by Dr. J. H. Taylor (p. 1246) ends with a plea for the appointment of a Royal Commission.

In relation with quackery the conduct of the great bulk of the newspaper press, including most of those that stand in the front rank of journalism, forms one of the greatest scandals of the present day. The exposure of a Royal Commission might perhaps put an end to the progressive degradation of the periodical press, and this alone would constitute a real service to the State.—I am, etc.,

Earlswood Common, May 27th. HENRY SEWILL.

THE METRIC SYSTEM AND THE CENTIGRADE THERMOMETER.

SIR,—Now that the adoption of the metric system in medical prescriptions is under discussion, the time would seem to be favourable for the advocacy of another change, which is all in the same direction, and which may be defended on the same grounds—namely, the substitution of the Centigrade for the Fahrenheit thermometer for clinical purposes.

What can be more absurd than to teach students to think in terms of the Centigrade scale while they pass successively through the preliminary studies of physics, chemistry, physiology, pharmacology, and bacteriology, and then to require them to take their patients' temperatures with Fahrenheit thermometers and to think in terms of that antiquated, though historically interesting instrument, so soon as they pass from the laboratories to the wards?*

If a student during his work in the wards is asked some question as to the energy value of the food of one of his patients, he will probably begin to think of a kilo of water raised 1° C., and not of a pound of water raised 4° Fahrenheit, just as he will (if he can) prefer to get the food factors into grams and litres. But if the temperature of the patient's body is alluded to, he will have to talk of degrees and tenths of degrees of the cumbersome Fahrenheit scale.

Similarly, if the case happens to be one of enteric fever, and some mention is made of the immunizing powers of antityphoid vaccines and their modification under varying temperatures, the Centigrade scale alone will be meant, while the temperature of the patient himself is being duly charted on the Fahrenheit scale.

No scientific defence of Fahrenheit's thermometer is now possible. The suggested innovation would carry us one step further towards a closer alliance between medicine and the other sciences both as to method and as to material, and the change is one which could be easily made complete in a few months.

Let the registrars of the various hospitals agree to allow none but Centigrade thermometers to be used in the wards, and let examiners forbid the use of any but the Centigrade scale in the answers of candidates for all medical examinations, and the thing would be done.—I am, etc.,

Brighton, May 18th. R. J. RYLE.

THE ELECTION OF DIRECT REPRESENTATIVE.

SIR,—I wish to thank most heartily through your columns "one and all," to use the Cornish motto, of the 4,049 members of the medical profession who so loyally supported and voted for me in the late election for a Direct Representative on the General Medical Council.

The great measure of success I attained warrants me in thinking that I shall be justified in appealing once more to the registered practitioners of England and Wales when what may be termed the general election comes off in November of this year.

It is to be regretted that only 10,106 out of 25,472 on the *Register* took the trouble to vote.

I have received some communications to the effect that voting papers have not been received. That can scarcely be the case if the Registrar of the Council has been notified as to the present address; but it might be well for those who think they have not received it this time to communicate with the Registrar of the General Medical Council.—I am, etc.,

Plymouth, May 23rd. GEO. JACKSON.

DR. COOKE FUND.

SIR,—May I, through your columns, acknowledge (on behalf of my Barnstaple colleagues and myself) the splendid response which has been made to our appeal? To each and every generous giver we tender our warmest thanks.

I have received the following communication from Dr. Cooke:

Westward Ho!
May 24th, 1911.

Dear Dr. Harper,—

Will you please accept for yourself and your Barnstaple colleagues my most sincere thanks for all you have done on my behalf, and will you be good enough to express to those who have so generously subscribed to the Dr. Cooke Fund my heartfelt gratitude and intense appreciation?

Such a magnificent response to your appeal deserves to be chronicled to the lasting honour of the medical profession, and no words of mine can adequately acknowledge it, and I only wish I could personally thank and shake by the hand the hundreds of warm-hearted medical men and women who have been so good to me in my distress.

I have been thinking how best I can show the reality of my gratitude. It seems to me that I can do so in no

* See the letters of Sir S. Wilks and Professor Cleveland Abbe in *Knowledge* for 1902, concerning the basis of the graduation employed in Fahrenheit's thermometer. Sir S. Wilks gives reasons for believing that Sir Isaac Newton was the actual inventor (*Phil. Trans.*, 1701).

more practical and effective way than by adopting the admirable suggestion that the capital should on my death form the nucleus of a permanent fund for the benefit of the medical profession which has so generously subscribed it.

Will you formulate some plan for carrying this into effect? And if my blindness and the exceeding goodness of my medical *confrères* result in the establishment of some permanent addition to our medical charities it will surely help me to bear my affliction with patience and fortitude.

Again thanking you, and through you every one of the many kind contributors who have lightened my darkness and brightened my life,

I am,
Very gratefully yours,
CHARLES M. COOKE.

Dr. J. R. Harper, Barnstaple.

The net result of our appeal is that we find ourselves in possession of some £2,000—a splendid nucleus for such a fund as is foreshadowed in Dr. Cooke's letter. It is only fair to say that the idea of a permanent scheme first emanated from Sir Henry Morris—himself a most liberal giver—but numbers of our correspondents have touched upon it, and I gladly commend the suggestion to your advocacy and to the consideration of your readers.

If only one of our medical benevolent or charitable institutions would take over the £2,000 and (after securing to Dr. Cooke some such annuity as he could secure by sinking the capital) make a further appeal on an extended basis and for a permanent purpose the result would, in my opinion, be assured.

It would be intensely gratifying to all who have so nobly supported the "Dr. Cooke Fund" if, instead of the capital being sunk, it could be utilized as suggested, and form a monument for all time to the fraternal freemasonry of our profession.—I am, etc.,

JOHN R. HARPER,
Treasurer.

Barnstaple, May 25th.

THE VACCINATION DEBATE IN THE HOUSE OF COMMONS.

SIR,—I quite agree with the statement in your editorial on the above subject, in the BRITISH MEDICAL JOURNAL for April 29th, that "the bulk of the medical profession is so thoroughly convinced of the value of vaccination that it is disposed to look upon the whole question as a *chose jugée*." Certainly, the ordinary "vaccination debate" between those who believe and those who disbelieve in vaccination is not a very edifying process, and, from the scientific point of view, it is generally entirely barren. The recent debate in the House of Commons, however, touched a higher level, and I think that both Dr. Hillier, on the one hand, and Mr. Burns, on the other, are to be congratulated on the way each presented his case. Dr. Hillier's arguments were quite orthodox, and I have no comment to make beyond pointing out, as Mr. Burns quickly did, that the behaviour of small-pox in the absence of vaccination in semi-civilized countries is not a very convincing argument as to how small-pox would behave in a country such as our own with an advanced system of sanitary control.

Mr. Burns, however, raised an all-important issue, which will certainly have to be faced; and, with your permission, I wish to refer to it. In effect, Mr. Burns suggested that it was possible for this country, in its present condition of comparatively high sanitary efficiency, to face small-pox with equanimity, even though infantile vaccination was falling more and more into disuse. Is it quite certain that Mr. Burns was wrong? As one who has been medical officer of health for ten years for a large industrial centre of nearly a quarter of a million inhabitants, which has the reputation of being the worst vaccinated community in the country, during which period two epidemics of small-pox, each numbering over 300 cases, has visited the town, I look at this question from a different point of view perhaps from most of your readers. To prevent misunderstanding let me make my position with regard to vaccination quite clear. I am an absolute believer in the power of vaccination to confer upon the individual complete, though temporary, protection against small-pox. I have publicly testified to this belief in Leicester by taking my wife and family—the youngest a babe in arms—all recently vaccinated, to the Leicester Small-pox Hospital, and there photographing them in a ward full of patients by the bedside of one of the worst cases. I knew, of course, that the experiment was free from any risk, but few medical men have testified to their faith in this simple and effective manner. The photograph obtained has been of great use in helping me to convince persons who have been exposed to the infection of small-pox of the immense value of recent vaccination. I may say, too, that not a single member of the Leicester Small-pox Hospital staff, during the epidemics referred to above, contracted the disease, and I attribute this entirely to the fact that I took care that every one (except one or two who had already had the disease) was recently vaccinated. I should be sorry, indeed, to have to fight an epidemic of small-pox without the invaluable protection which recent vaccination confers upon those who have to deal with the disease.

But having said this much, I feel I must go further and confess that my experience in Leicester, whilst it has confirmed me in the beliefs just expressed, has seriously shaken other beliefs which I held prior to coming to Leicester. I have now come to believe that the danger, at the present day, of small-pox "spreading like wild-fire in an unvaccinated community, once the sparks of infection are introduced," has been greatly over-estimated. There has been none of this "spreading like wild-fire" in Leicester. It is true that the entire population of the town is not unvaccinated, but one important section of it, the school children, are, for all practical purposes, entirely unvaccinated. Yet although school children have been repeatedly attacked whilst still attending school, the disease has never "caught on" in a single school, nor have I ever had to close schools on account of it. A similar immunity of the school children was observed in the earlier epidemic of 1893.

To be quite frank, I have come to doubt whether the problem of preventing the spread of small-pox, under modern conditions, is rendered much, if any, more difficult by reason of the existence of a large proportion of unvaccinated persons; and after all, the bulk of the adult population in any town (in this country) is virtually unprotected, for the effect of vaccination in warding off an attack only lasts for about a decade.

Perhaps at this point I had better clear the ground of the question of revaccination. I am quite aware that the protective power of vaccination can be renewed as often as necessary by revaccination, and I quite believe that if the German system (including a third vaccination of all males) could be adopted in this country, equal results would be obtained. But I am satisfied (even if I thought the risk of small-pox sufficient to justify such a heavy premium) that, with the strong prejudice that exists against vaccination, any system of compulsory revaccination is quite out of the question, and Dr. Hillier himself admitted that it was not practical politics. Therefore I do not propose to consider the question of revaccination any further.

But to return to the question of infantile vaccination, not only have I come to doubt how far the presence of unvaccinated persons in a population makes the problem more difficult, but I am even inclined to think that in an entirely unvaccinated community the problem might actually be easier. My reasons for this are as follows: My experience of small-pox in Leicester has impressed me with the great danger of spread of the disease arising from the occurrence of very slight, highly modified, and on that account unrecognized cases of the disease. Repeated examples of this have occurred in Liecester, and indeed everywhere. No precautions can be taken in these cases as their real nature is not known, and consequently they too often spread the disease broadcast. A good instance in point is the recent outbreak in the East End of London, due to an unrecognized case of small-pox, in a child of 12, who was treated for three weeks in a general ward in the Mile End Infirmary, with the result that at least 30 cases with 8 deaths occurred, and the disease was given a big chance of getting a foothold in the metropolis.

Now it is well known to every medical man (except those who disbelieve in vaccination) that these slight unrecognized cases of small-pox which do such infinite mischief are very much more likely to occur amongst those who have been once vaccinated than amongst the unvaccinated. Small-pox when it attacks an unvaccinated child

almost always produces such definite and characteristic symptoms that, with the rare exception of certain haemorrhagic or malignant cases, it is difficult to mistake it. I say without fear of contradiction that *the vast majority of mistakes in diagnosis occur with vaccinated subjects.* The child, Annie Levy, who was the innocent cause of the outbreak at the Mile End Infirmary, *had been vaccinated.* Mr. Burns might very well have mentioned this in his reply to Dr. Hillier. Moreover—and this is my point—I submit that if she had not been vaccinated it is unlikely that the mistake in diagnosis which caused the outbreak, with its eight deaths, would ever have been made. Did space permit I would have elaborated this view further, but I trust I have said sufficient to show that there is still some room for debate even amongst those who believe in vaccination.

The experience of Leicester is worth studying. For a quarter of a century infantile vaccination has virtually been abandoned. The most confident predictions have been repeatedly made as to the fate which would overtake the town, and, according to orthodox teaching, those predictions, made in perfect good faith, were fully justified. Yet the event has shown that the predictions were wrong. It was positively asserted that Leicester could not pass through the fire (of an epidemic) without being burnt up. She has passed through the fire, and she has not been burnt up. Surely, then, it is reasonable to submit that the theories upon which those predictions were based require revising.—I am, etc,

C. KILLICK MILLARD,
Medical Officer of Health for Leicester.

Leicester, May 1st.

SIR EDWARD HANNES AND SIR WILLIAM READ.

SIR,—It has always seemed to me very unfair to bracket Sir Edward Hannes and Sir William Read as is done in the rhymes quoted in the very interesting paper on Quackery in the JOURNAL of May 27th. These two men had something in common, but much in which they differed.

Although Hannes was the son of a basket maker (a fact Radcliffe thought fit to remind him of when he and Hannes quarrelled over the treatment of Queen Anne's son), yet he was well educated, having been at Westminster and afterwards at Oxford (Christ Church), where he graduated both M.A. and M.D. Unfortunately, in order to get practice, he stooped to most deplorable tricks, such as employing men to go into coffee taverns and to stop carriages and inquire "whether Dr. Hannes were within." Probably, for conduct of this sort he was never admitted a member of the College of Physicians.

Read, on the other hand, was simply an uneducated humbug, as the following advertisement, which I take from the *London Gazette*, August 21st, 1714, seems to prove:

> Sir William Read, Oculist in Ordinary to Her late Majesty, Queen Anne, of Blessed Memory, his Occasions requiring his Attendance on some Persons of Distinction in Distempers relating to the Eyes, is now at home, so that he will be constantly to be advised with at his House in Durham Yard in the Strand, where himself, or the Lady Read, Couches the Poor of Cataracts gratis, which Operation she duly performs, and cures other Distempers incident to the Eyes with good Effect and great Success, having been well instructed by Sir William for the Service of the Public.

The Heralds objected to the Knighthoods conferred by the Sovereign on these men, but for very different reasons. Hannes because he had not registered his coat of arms at Heralds' College; Read, because he was illiterate, or, as they put it, the use of the word "*Read*" was limited to his name, as he could neither *read* nor write.—I am, etc.,

May 29th. S. D. CLIPPINGDALE, M.D.

THE next course of vacation lectures of the Berliner Dozenten-Vereinigung will begin on October 2nd, and conclude on October 28th. Further particulars can be obtained from Herr Melzer, Ziegel-strasse 10–11 (Langenbeck Haus), Berlin.

THE first International Congress on Diseases of Children will be held at Brussels in August next (12th to 18th) under the honorary presidency of Dr. V. Desguin, of Antwerp, and the actual presidency of Dr. Deerdly, of Brussels. The general secretary is Madame Ioteyko, M.D., 35, Avenue Paul de Jaer, Brussels.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary comitia was held at the college on Thursday, May 25th, the President (Sir Thomas Barlow) in the chair.

Licence.

The Licence of the College was granted to James Owen David Wade.

Patent Medicines.

A report was received from the Censors' Board on the letter from the Home Office, dated March 2nd, 1911, concerning the labelling of patent medicines, recommending that—

> In reply to the communication from the Home Office, the Royal College of Physicians is of opinion that it would be greatly to the benefit of the public if the manufacturers and vendors of patent medicines were compelled to print on the labels of the bottle or other vessel the exact composition of all such medicine, and the amount of each constituent.
>
> The College, however, recommends that the manufacturers and vendors shall not be allowed to print on the label the names of the diseases or symptoms which the patent medicine purports to cure, as the College is of opinion that such printing of the names furthers the erroneous idea that particular diseases and symptoms can always be cured by particular drugs.

National Insurance Bill.

The College then proceeded to consider the National Insurance Bill. (See SUPPLEMENT, p. 340).

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE Council is at present constituted as follows:

President.

Mr. H. T. Butlin; C, (1) 1895, (2) 1903.

Vice-Presidents.

Mr. R. Clement Lucas; C, (1) 1901, (2) 1909.
Mr. C. W. Mansell Moullin; C, (1) 1902 (substitute), (2) 1907.

Other Members of Council.

Sir Henry Morris, Bart.; C, (1) 1893 (substitute), (2) 1898, (3) 1906.
Mr. Edmund Owen; C, (1) 1897, (2) 1905.
Mr. Rickman Godlee; C, (1) 1897, (2) 1905.
Sir W. Watson Cheyne, Bart.; C, (1) 1897 (substitute), (2) 1901, (3) 1909.
Mr. F. Richardson Cross; C, (1) 1898, (2) 1906.
Sir A. Pearce Gould; C, (1) 1900, (2) 1908.
Mr. Clinton T. Dent; C, 1903.
Mr. G. H. Makins, C.B.; C, 1903.
Sir Frederick S. Eve; C, (1) 1904 (substitute), (2) 1907, (substitute for Sir J. Tweedy till 1912).
Mr. Anthony A. Bowlby, C.M.G.; C, 1904.
Mr. Gilbert Barling; C, 1904.
Mr. C. H. Golding-Bird; C, 1905.
Mr. W. Bruce Clarke; C, 1907.
Mr. Charters J. Symonds; C, 1907.
Mr. W. F. Haslam; C, 1908.
Mr. C. B. Lockwood; C, (1) 1908 (substitute), (2) 1910.
Mr. W. Arbuthnot Lane; C, 1908.
Mr. W. Harrison Cripps; C, (1) 1905 (substitute till 1908), (2) 1909.
Mr. Bilton Pollard; C, 1910.
Mr. C. A. Ballance, M.V.O.; C, 1910 (substitute for Mr. G. A. Wright until 1914).
Mr. J. Bland-Sutton; C, 1910.

The following list shows the proportional representation of metropolitan medical schools and the provinces:

St. Bartholomew's	5
Guy's	4
King's College	1
London	2
Middlesex	3
St. George's	1
St. Mary's	1
St. Thomas's	2
University College	2
Total number attached to London schools	21
Provincial members (Birmingham 2, Bristol 1)	3
Total	24

On this occasion only two members—Mr. Clinton Dent and Mr. Makins—retire, having served eight years. Mr. Butlin was likewise elected in 1903, but being President he does not retire. No substitute members retire this year.

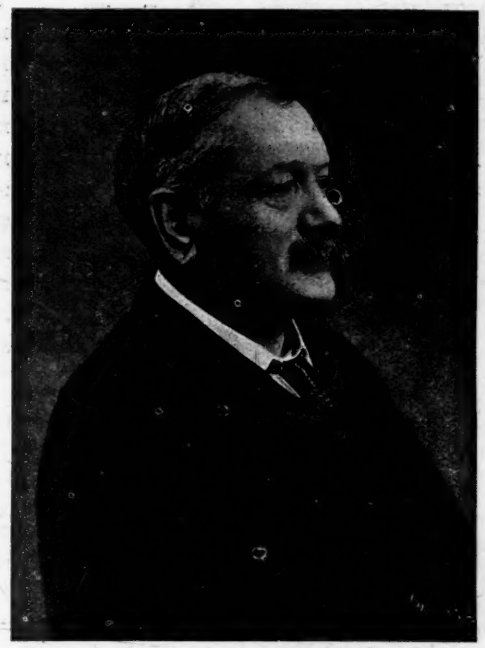
AT the annual meeting of the Society for the State Registration of Nurses, on May 25th, it was stated that its objects were now supported by medical societies and nursing bodies representing a united membership of 30,000 individuals.

Obituary.

THOMAS RUTHERFORD, M.B., C.M.EDIN.,

KELSO.

THE lamented death of Dr. Rutherford of Kelso, which occurred on May 7th, leaves a great blank in the ranks of the Scottish medical profession, for not only was he widely known and welcomed in his own borderland, but was recognized by his medical brethren and the public as one whose pre-eminence and force of character ever maintained the highest professional ideals.



DR. THOMAS RUTHERFORD.
[*Photograph by W. Crooke, Princes Street, Edinburgh.*]

Thomas Rutherford sprung from an old border family; he was a nephew of the late distinguished Professor of Physiology in the University of Edinburgh, was born in 1848, and received his early education in Crailing and the Nest Academy, Jedburgh. He studied Medicine in Edinburgh, and graduated M.B., C.M. in 1870. A leader amongst men, he won the respect and affection of his fellow students and teachers. Always remarkable for originality and energy, he volunteered while yet a student for the Franco-German war, and there gained much varied experience.

After graduation he was appointed one of the resident physicians in the Royal Infirmary, and thereafter his surgical leanings led to his receiving the post of Resident House-Surgeon under his old teacher, the late Professor Spence. He then continued his studies in Vienna and other Continental centres. After this he settled in Kelso, where he rapidly established a leading practice which was carried on with characteristic devotion till the end. Few busy practitioners could keep so well abreast of medical advance as Rutherford did, and his knowledge of public health, sanitation, and bacteriology found its expression in the local hospital, and was always fully at the service of his townsmen. He was a sound all-round practitioner, and possessed an extensive knowledge of ophthalmology.

Dr. Rutherford was a great and forcible personality. Straightforward, vigorous, upright, he spoke out boldly what he thought, and yet was always ready to receive and consider the opinion of others. His judicial mind rapidly formed and acted upon his honest convictions, and he enjoyed a deservedly high reputation as a skilled and trustworthy practitioner, whose advice was well worth having and whose counsel was eagerly sought. His strong virility concealed a tender heart, and, while he could not stoop to court practice, his experience and promptitude drew all to him.

Dr. Rutherford was Physician to the Kelso Dispensary and to the County Fever Hospital, as well as Parochial Medical Officer and Vaccinator for Smallholm and Linton. He was a member of the British Medical Association and of the Berwickshire Natural History Club, and a Fellow of the Hunterian Society.

Dr. Rutherford was catholic in his tastes; a keen lover of Nature, he revelled in the country and was a good golfer. Devoted to music, he welcomed many well-known musicians to his home, and few things gave him greater pleasure than well-rendered orchestral or operatic works. He travelled much, and refreshed his surgical longings at various foreign hospitals. He found solace in his leisure moments in literature, always harking back to his favourite Horace. He was endeared to an unusually wide circle, and those who were privileged to know him most intimately will ever treasure the memory of their great-hearted friend. Of late years Dr. Rutherford suffered severely from recurrent attacks of influenza and obstinate insomnia, and he sank unexpectedly after an operation performed for the relief of an internal affection. He leaves a widow to mourn his loss.

He was carried to his rest in the Kelso cemetery amidst the sorrow of his friends and with signs of public mourning.

EDMUND BANCKS WHITCOMBE, M.Sc., M.B., CH.B.BIRM.,

PROFESSOR OF MENTAL DISEASES, UNIVERSITY OF BIRMINGHAM.

A LONG career in alienist medicine, and one spent almost entirely in the service of a single institution, came to an end with the death of Dr. E. B. Whitcombe on May 13th. It was the result of pneumonia following an attack of influenza, and took place at the Birmingham City Asylum, of which he had been Medical Superintendent for many years.

Dr. Whitcombe received his professional education at the old Sydenham College, Birmingham, and after becoming M.R.C.S. and L.S.A., in 1868, almost immediately took up the study of mental disease as a speciality. Within two years he had joined the Birmingham City Asylum as Assistant Superintendent, and, except for four years between 1878 and 1882, when he was Medical Superintendent of the East Riding Asylum at Beverley, he remained in its service throughout his life. He succeeded the late Dr. Green as Medical Superintendent in 1882, and some three years ago the completion of his twenty-fifth year of office was celebrated by a dinner and presentations to him by members of the asylum staff and of the Asylums Committee. His connexion with the university was also long. He became Lecturer on Mental Diseases at Queen's College, Birmingham, in the early Eighties, and towards their end was appointed to the professorship of the university in the same subject. The degrees which he held in its faculties of medicine and science were conferred on him in 1901. Meantime he had delivered the Ingleby Lectures in 1890, and was president of the Medico-Psychological Association of Great Britain and Ireland in 1891.

As a Medical Superintendent Dr. Whitcombe disliked methods of restraint, and endeavoured to introduce into asylum life, as far as possible, something of the atmosphere of a home. He was also a strong advocate of open air in the treatment of mental disease. He was frequently consulted with regard to asylum enterprises in Yorkshire, and thus played a part in assisting the development of many mental hospitals other than his own. Of the Birmingham Benevolent Society he was President in 1907, and remained a member of its court of directors up to the time of his death. He enjoyed much esteem among his professional brethren, and by all those with whom his work brought him into contact his death will be sincerely regretted.

Dr. Whitcombe was married, and leaves a widow, four sons, and a daughter. His funeral on May 17th was attended by representatives of the university, and of several departments of the Corporation of Birmingham, as well as by a number of his medical colleagues.

MR. GEORGE ASTON PEDLEY, of Winchester and Southampton, died at his residence in the former city at the end of April. He had not been in good health for some time previously, and had recently been away for a change of air. On his return he seemed very much better, but soon afterwards had a sudden attack of illness, and died the same evening. He received his medical education at St.

Mary's Hospital, becoming M.R.C.S., L.S.A., in 1886, and L.R.C.P.Lond. in 1887, serving meantime a term of office as House-Surgeon at the hospital. He then went to Burma, where he was surgeon to the Irrawaddy Flotilla Company, Honorary Surgeon to the Home for Lepers at Mandalay, and held a commission as Surgeon-Captain in the Upper Burma Volunteer Rifles. On returning home ten years later he took up the study of dentistry at the National Dental Hospital and in the dental department of Guy's Hospital, and received the licence in dental surgery of the Royal College of Surgeons in 1897. Thus qualified, he served a term of office as House-Surgeon at the National Dental Hospital, and then began to practise in Tonbridge, where he made many friends. Later on he moved to Winchester, and at the time of his death had been living there some six years, practising with a partner both in Winchester and in Southampton. In all that concerned the welfare of Winchester he took a deep interest, but was debarred by the state of his health from taking any part in its public life except in connexion with the Young Men's Christian Association and other allied bodies which specially appealed to his sympathies. He was in the 52nd year of his age, and has left behind him a widow and three daughters; his only son died through an accident about two years ago.

DR. CHARLES MON STEWART, of Toronto, met with his death from a street accident in that city on March 25th. The horse which he was riding, becoming restive, got in front of a street car, with the result that Dr. Stewart was thrown between the lines and killed instantly. The news will be received with much regret by all those to whom Dr. Stewart became well known during his visits to this country. He was originally a student of the University of Toronto, where he took the degrees of M.D., C.M., in 1897, and remained on as House-Surgeon of the General Hospital for some two years. He then spent several years in post-graduate work in London and Edinburgh. On his return to Canada he became Superintendent of the General Hospital at Toronto, and later on again came to England to study ear, nose, and throat diseases. During this period he served a term of office as Resident Medical Officer and House-Surgeon to the Throat Hospital, Golden Square, where he enjoyed much esteem and popularity. He also at this time joined the Laryngological Section of the Royal Society of Medicine. He went back to Canada some three years ago, and had since been practising as a specialist. While in England he took the conjoint diplomas of the Royal Colleges in London. He was a Fellow of the Trinity Medical College at Toronto, and held an appointment in the Ear, Nose, and Throat Department at the General Hospital.

Public Health
AND
POOR LAW MEDICAL SERVICES.

THE CENSUS.

ENGLAND AND WALES.

THE summary of the figures obtained at the recent Census, according to the preliminary examination of the returns, was issued with the parliamentary papers of May 25th. The figures are annexed to an answer by Mr. Burns, the President of the Local Government Board, to a question by Dr. Addison. Mr. Burns points out in his reply that the figures for 1911 are subject to correction, being the provisional numbers derived from summaries furnished by the local registration officers. The following results are shown in Mr. Burns's statement:

The population of England and Wales has increased since 1901 by	3,547,426
Equal to	10.91 per cent.
The increase is made up as follows:	
England	3,286,640
Wales	260,786
	3,547,426
The 62 administrative counties show an increase of	2,660,014
Equal to	11.80 per cent.
The 75 county boroughs show an increase of ...	887,412
Equal to	8.89 per cent.
In the County of London there is a decrease of...	13,306
Equal to	0.29 per cent.
In Greater London there is an increase of ...	684,867
Equal to	10.20 per cent.

Previous Census Returns.

At the Census of 1901 the increase of population, as compared with the Census of 1891, was ...	3,525,318
Equal to	12.17 per cent.

The present rate of increase, 10.91 per cent., is the lowest ever recorded since the first general Census was taken in 1801. The numbers and percentages on previous occasions were:

—	Population	Rate of Increase.
1801	8,892,536	—
1811	10,164,256	14.00
1821	12,000,236	18.06
1831	13,896,797	15.80
1841	15,914,148	14 27
1851	17,927,609	12.65
1861	20,066,224	11 90
1871	22,712,266	13.21
1881	25,974,439	14.36
1891	29,002,525	11.65
1901	32,527,843	12.17
1911	33,075,269	10.91

IRELAND.

The preliminary Irish Census report has just been issued. It shows that the population on April 2nd was 4,381 951 persons, including 2,186,804 males and 2,195,147 females. The decrease, as compared with the Census of 1901, is 76 824 persons, or 1.7 per cent. The decrease in the number of males equals 0.6 per cent, and of females 2.8 per cent. The only province which shows an increase of population is Leinster, with an increase of 7,499 persons.

The number of inhabitants in each of the provinces and in all Ireland in 1901 and 1911 is shown in the following statement.

	1901.	1911.	Increase or Decrease.	Rate per Cent.
Leinster... ...	1,152,829	1,160,328	+ 7,499	+0.7
Munster... ...	1,076,188	1,033,085	−43,103	−4.0
Ulster	1,582,826	1,578,572	− 4,254	−0.3
Connaught ...	646,932	609,966	−36,966	−5.7
Total ...	4,458,775	4,381,951	−76,824	−1.7

The greatest decrease—43,103 persons—is in Munster; Connaught shows a decrease of 36,966 persons, and Ulster 4,254 persons.

There was an increase between 1901 and 1911 in the population of four counties—Dublin, Down, Kildare, and Antrim. There was a decrease in the population of all the other counties ranging from 0.4 per cent. in Wicklow to 8.3 in Leitrim.

The number of families returned in 1911 is 912,711, an increase over 1901 of 2,455. The average number of persons per family is now 4 8 against 4.9 in 1901. In most of the larger towns an increase in population is shown: Dublin has an increase of 6.4 per cent., and has now a population of 309,272 persons; Belfast shows an increment of 10.4 per cent., and has now the largest urban population in Ireland—namely, 385,492 persons.

Medico-Legal.

WORKMEN'S COMPENSATION.

Medical Referees and Medical Evidence.

IN the case of Buckley *v.* Rose Bridge Colliery (Wigan, May 2nd) the evidence was to the effect that when the applicant was lifting a tub he complained of having strained his side. He was seen by two or three medical men, and received certificates for three weeks entitling him to receive compensation. Afterwards it was alleged that the man was suffering from varicocele, which could not be attributed to the accident.

His Honour Judge Bradbury asked the medical witnesses if they believed the applicant's story when they certified he was suffering from accident.

One medical man said he was bound to accept the man's statement, and another said the varicocele could not have been due to accident.

His Honour, in giving judgement for the applicant, said he was sick of hearing in that court evidence of medical men which was contradictory. In that case one partner said in

effect that the man was a liar, and the other believed what he said. Under the Act of Parliament he sent as many of those cases as he could to the medical referee, and the case before him showed the usefulness of such an official. He believed the man's story, and allowed him compensation.

Medical News.

THE Lord Chancellor has added the name of Dr. Arthur D. Hughes to the Commission of the Peace for the borough of Deal.

ON the occasion of the anniversary of the Queen's birthday, May 26th, the flag presented to the Royal Dental Hospital by the Students' Club was hoisted for the first time by Mr. John Hampton Hale, Chairman of the Committee of Management.

WE are informed that at the Royal College of Physicians there are still a few seats, not yet allotted, to view the Royal Progress on Friday, June 23rd, and that these seats will be allotted to Licentiates of the College in the order of their application. The price of each seat is the same as to Fellows and Members—namely, one guinea and a half, to include refreshments; and applications should be sent to the College, Pall Mall East.

A BILL was introduced into the National House of Representatives (United States) on May 6th, providing "a stamp tax of one-eighth of a cent on every five cents' worth of proprietary medicines, perfumes, cosmetics, and similar articles prepared under secret or privately owned formulae." The bill has been referred to the Ways and Means Committee.

AT the annual meeting, on May 24th, of the Queen's Hospital for Children, Hackney Road, London, two ladies were elected on the committee of twenty governors for the ensuing year. The hospital has 134 beds in London, and will shortly have 30 beds at the seaside branch at Bexhill, which is to be opened on July 13th, by H.R.H. Princess Louise, Duchess of Argyll.

PROFESSOR WILSON recently contributed an interesting paper, on the inheritance of milk yield in cattle, to the Royal Dublin Society. His main conclusion was that milk yield is a Mendelian character, and in consequence he thought that if proper steps were taken the milk yield of a breed of cattle could be nearly doubled within a short time. His conclusions are based on an extensive nvestigation of the subject.

AT the recent examination for sanitary inspectors under the Public Health (London) Act, 1891, held by the Sanitary Inspectors' Examination Board, 20 candidates passed, of whom 7 were trained at the Royal Sanitary Institute, 4 at the National Health Society, 3 at King's College, 2 at the Battersea Polytechnic, and 1 at the Hackney Institute; the 3 other candidates were in office. Of the successful candidates, 9 were women.

PREPARATIONS for the Congress of the Royal Institute of Public Health, which is to be held this summer in Dublin, are well advanced, and a preliminary programme of subjects for discussion at the different sections has been drawn up. The list of selected subjects includes the following: (1) Vaccination; (2) aërial convection of disease; (3) typhoid carriers; (4) diseases transmissible from animals to man; (5) the vital statistics in Dublin; (6) medical inspection of schools.

THE *Boston Medical and Surgical Journal* states that it is reported that on May 4th the Governor of New Jersey signed the "Sterilization Bill" recently passed by the Legislature of that State, providing for the asexualization of criminals and defectives. A board of examiners is to be appointed to carry out the law. New Jersey is said to be the fourth State in the Union to enact such a measure, similar laws being already operative in Indiana, Connecticut, and California.

A BANQUET of the Brussels Medical Graduates' Association will be held at the Garden Club of the Coronation Exhibition, on Thursday, June 8th, at 8 p.m. All graduates of the University of Brussels are welcome, and members are invited to bring ladies. Tickets, 7s. 6d. each (not including wine) may be obtained from the Honorary Secretary, Dr. Arthur Haydon, 23, Henrietta Street, Cavendish Square, W.

THE fourteenth annual meeting of the Medical Library Association was held on May 9th and 10th, at Atlantic City. After an address by the President, Dr. J. H. Musser of Philadelphia, papers were read by Mrs. Grace W. Myers (Boston) on hospital records in relation to the hospital librarian, by Dr. Carl Black (Jacksonville, Illinois) on the establishment of medical libraries in county medical societies, and by Mr. C. Perry Fisher (Philadelphia) on the changes in medical periodical literature since January, 1909.

FROM the annual report of the Homes for Inebriates Association we gather that Dr. F. S. D. Hogg, Medical Superintendent of Dalrymple House, is of opinion that when an alcoholic is under medical observation he can be, and best is, deprived of all alcohol forthwith; in a morphinomaniac, on the contrary, the drug should be withdrawn only little by little. He would like to see all patients signing under the Act for the maximum period of two years; he would not detain them, however, for that period as a rule, but would allow them out on leave of absence granted on the condition that should a relapse occur the patient would be liable to return to the retreat. He has endeavoured to ascertain the after-history of 978 patients who have left the institution during his tenure of office—twelve years—and concludes that about 67.8 per cent. are doing well, 16.1 per cent. improved, and 16.1 per cent. not improved.

AT the last Italian Congress on Cremation, held in Milan, it was reported that since the federation for promoting that method of disposal of the dead was founded three years ago twenty societies have joined; in addition to these there are twenty-two independent societies. The membership of the federated societies is now about 6,000. Leghorn heads the list with 1,000 members; next come in order the societies of Milan, Bologna, Turin, Florence, Genoa, Brescia, and Novara. There are "cremation temples" at Arezzo, Asti, Bergamo, Brescia, Bologna, Codogno, Florence, Genoa, Leghorn, Milan, Piacenza, Pistoia, Siena, Turin, and Varese. Besides these, there are crematories at the disposal of communes at Brà, Como, Cremona, Lodi, Modena, Novara, Pallanza, Perugia, Pisa, Rome, San Remo, Spezia, Udine, Venice, and Verona. The following are the total numbers of cremations in the chief cities up to the end of 1907: Bologna, 374; Florence, 469; Leghorn, 456; Milan, 2,213; Rome, 1,345; Turin, 425; Cremona, 140; Venice, 101; Genoa, 100. To appreciate the relative value of these figures account must be taken of the population in each place and the date at which cremation was instituted. Thus, at Milan, where it was started in 1876, there were 2 cremations in the first year and 465 in 1907. In Rome cremation was instituted in 1883, in Turin in 1887, in Genoa in 1905. The crematories are of the Gorini type, except at Milan, where a gas oven is used. The cost of cremation ranges from a minimum of 15 francs to a maximum of 40 francs; the urn costs 10 francs extra. In some cities, like Turin, Perugia, Udine, and Verona, cremation is gratuitous to the poor.

AT the annual meeting of the Asylum Workers' Association, held at the rooms of the Medical Society of London on May 24th, Sir William Collins, M.D., President, in the chair, there was a large attendance, including many representatives of the medical profession and of the staffs of asylums. The annual report showed a satisfactory increase in membership, which now amounted to 5,276. The financial statement was satisfactory. The largest item of expenditure was that for *Asylum News*—£250 net. The association was indebted to Dr. James Nicoll for his able services as editor. The Homes of Rest Fund has not been so well supported as previously, but it had done good service, having provided needed rest and change to twenty-one convalescent attendants and nurses. In conjunction with the Medico-Psychological Association, a joint advisory committee had dealt with a number of cases of alleged grievances arising in the administration of the Asylum Workers' Superannuation Act, and in some cases satisfactory redress had been obtained; in others it had been necessary to obtain counsel's opinion, and in some cases of dispute appeal had been made to the Home Secretary, who was still awaiting the advice of the law officers of the Crown as to his powers under Section 15. The Executive Committee had spent much time in considering the best method of obtaining superannuation allowances for workers in registered hospitals and private asylums, either through the Royal National Pension Fund for Nurses or an insurance society, and had had under discussion Lord Wolmer's bill for limiting the hours of employment in the wards of asylums and certain amendments which he proposed in the Act of 1909. Evidence would be tendered to the Select Committee on behalf of the association. The presentation of two gold, two silver, and twenty-six bronze medals for long and meritorious nursing in asylums followed. The President was re-elected.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, London.* The telegraphic address of the BRITISH MEDICAL JOURNAL is *Articulate, London.*

TELEPHONE (National):—
2631, Gerrard, EDITOR, BRITISH MEDICAL JOURNAL.
2630, Gerrard, BRITISH MEDICAL ASSOCIATION.
2634, Gerrard, MEDICAL SECRETARY.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

ONYX asks for suggestions in the treatment of the following case: A lady, in consequence of suppuration under the nail of her forefinger, lost the entire nail; it has now grown half-way up, and the fleshy part of the terminal phalanx has increased in size. It is desired to make the nail continue its growth in order to cover the upper half of the nail bed.

ANSWERS.

AREA OF VACCINATION.

MARKER.—"One small mark" is not efficient vaccination. Clause 7 of the Third Schedule of the Vaccination Order, 1898, contains instructions to vaccinators as to the number and size of the vesicles as follows: "In all cases of primary vaccination the public vaccinator must aim at producing four separate and good-sized vesicles not less than half an inch from one another. The total area of vesiculation resulting from vaccination should not be less than half a square inch." Statistical evidence on the question submitted by "Marker" has been collected by many observers. Mr. Marston, of the London small-pox hospitals, made observations in nearly 6,000 cases of post-vaccinal small-pox. The subjoined table is founded on information he gave to the medical officer of the Local Government Board, based on those observations:

Cases of Small-pox, classified according to the Vaccination borne by each Patient respectively.	No. of Deaths per Cent. in each Class respectively.
Stated to have been vaccinated, but having no cicatrix	21⅔
Having one vaccine cicatrix	7½
Having two vaccine cicatrices	4½
Having three vaccine cicatrices	1⅔
Having four or more vaccine cicatrices	¾
Unvaccinated	35⅓

LETTERS, NOTES, ETC.

EVIDENCE OF SEVERE ILLNESS AFFORDED BY THE NAILS.

DR. OWEN WILLIAMS (Glandyfi) writes: In the JOURNAL of May 20th I noticed a note under the above-mentioned heading, and I agree with the writer that the existence of transverse marks or furrows on the nails during illness or immediately after do not necessarily imply that the patient has been at "death's door." It was only last week that a young woman, aged about 25, called my attention to the transverse growth on all the nails of her fingers and asked me the significance of them, and I recalled to mind what I had read in the JOURNAL written by Dr. Norman Flower and Sir Samuel Wilks, but we could not come to the conclusion that she had at any time been near "death's door." I had been attending her recently for follicular tonsillitis and a gastric ulcer, and, like the patient referred to in the note, she had never been "seriously or dangerously ill." I may mention that she first noticed these furrows—a single furrow on each nail—a little over a week ago. They are now about one-eighth of the way down from the root of the nail, and look like new nails growing and gradually shedding off the old ones, and they will probably take from two to three months before the furrows disappear. It is possible that they occur in illness, but they do not necessarily signify that the patient has been at "death's door," and I should not have referred to the matter if I had not noticed the note in the JOURNAL.

THE EXPRESSION OF THE COLOUR-BLIND.

DR. GEORGE HENRY TAYLOR (Sydney) writes: I have now seen and conversed with seven educated and intelligent red or green blind persons (Holmgren's classification) not connected with the railway service. I found that each of them belonged to the type I have described in my former notes. As a red or green blind person (in my former notes I described these as red-green blinds) has something wanting in the expression of his face that is always present (although varying in degree in different persons) in a person who has normal colour vision, the fact that a face is alert and intelligent may conceal this defect. In classifying a candidate's colour sense after he has been examined by the wools and the lantern, it is the quality of an error made that determines the expert, not the number of errors. A trained and alert mind if blind to red and green may escape detection by a careless and inexperienced examiner. When the mind of a red or green blind person is untrained in colour, detection is simple. In exceptional cases an equal degree of difficulty will exist even with a trained observer in classifying a face. With the ordinary candidate it is not difficult to recognize a red-green blind by his face value, under the conditions I have described in a former note. Many of the red or green blind persons I reject for work on the running lines are employed in the railway workshops. I occasionally see some of these men when they have been sick or injured. The type is obvious after it has once been recognized.

SHIP SURGEONS.

DR. JOHN F. ELLIOTT (Member of Ship Surgeons' Subcommittee, British Medical Association, South View, Rostrevor, co. Down) writes: Now that a common cause is bringing medical men into closer union, and the next few weeks will see many meetings, a very favourable opportunity will be afforded those who are interested in the matter of getting into touch with ship surgeons, both active and retired, and bringing to their notice the fact that a subcommittee has been formed, under the auspices of the British Medical Association, for the purpose of placing matters connected with the medical marine upon an official footing.

STATIC REFRACTION OF THE EYE.

GLAUCUS writes: Although the static refraction of the eye is defined as its refractive state while at rest, apparently some authors consider, or are undecided as to, this condition being fulfilled when the tone of the ciliary muscle is abrogated by atropine. That this ambiguity exists is readily found out by students of refraction when they come to apply their author's teaching and its implications. Writers on retinoscopy seem undecided as to whether they should say anything about deduction for atropine *per se* when this is used, while under the same conditions for "vision testing" by the old trial method the deduction is always insisted on. As is well known in retinoscopy, under atropine the deduction for "distance" at rate of 1 D for 1 metre point of reversal leaves as a result in hypermetropia the total H (manifest *plus* latent) and in myopia the total M, less the amount neutralized by relaxation of the ciliary by the mydriatic. Apart from retinoscopy, some authors deduct as little as one-third of the latent H; others all. As, especially in astigmatic cases, it is best to proceed at once with retinoscopy, both for diagnosis and measurement, the calculation of the result, say in H, with reference to the relative amounts of manifest and latent H does not generally obtain and requires extra time, therefore it might be well if authors would give their opinions in their teaching as to deduction for mydriatic *per se* in retinoscopy when such is used, as at present there seems much diversity of opinion or want of opinion on the subject.

THE CAUSE OF THE SYMPTOMS OF MALARIA.

COLONEL M. D. O'CONNELL, M.D. (Kirkby Wharfe, Tad. aster), writes: From the ever-increasing number of works being published on the parasitology, biology, entomology, bionomics, epidemiology, and mathematics of malaria, is there not some danger of some of the more interesting, still unsolved, problems of the disease being lost sight of, such as the actual cause of the pyrexia, and the grave anaemia which follows it, or rather accompanies it? It is said that both are caused by a toxin formed within the parasite, and liberated therefrom during sporulation either immediately before or at the time of the rigor. This, I presume, is only conjecture. When the old miasmatic origin of malaria was held, it was said that the actual cause of the pyrexia was a *poison* given off from marsh land under certain conditions of atmospheric heat and humidity. If enthusiastic students inquired the nature of this poison they felt, naturally, disappointed on being told that it was "imponderable, immeasurable, and not recognizable by any test." In fact its very existence was conjectural. But is the parasitic toxin of to-day any less conjectural than the marsh poison of the past?

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£ s. d.
Eight lines and under	0 4 0
Each additional line	0 0 6
A whole column	2 13 4
A page	8 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes Restante* letters addressed either in initials or numbers.